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New Firm Buys Waterway Products Plant

Waterway Board and Paper Co. Purchases From International Paper Co. All Property of Former Waterway Paper Products Co. — New Concern May Install Four Machines to Manufacture Paper Board and Specialties.

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., June 5, 1939—The Waterway Board and Paper Company, a new corporation, this week purchased from the International Paper Company all the property formerly known as the Waterway Paper Products Company occupying a twelve acre site at Kedzie Avenue and West 32nd Street. A high pressure steam system, deep water well and rail and water transportation facilities are some of the attributes of the new site. When fully developed, the industry will employ more than 500 persons and will represent a total investment in land, buildings and equipment estimated at about $3,500,000. It is the intention of the purchaser to manufacture boxboard, cartons, folding boxes and paper specialties. The program is reported to call for four paper machines having a total capacity of about 600 tons per day. The production and increased development will take place as fast as available tonnages are sold.

An announcement from D. S. Bobb, attorney for the seller, indicates that the purchasing corporation selected Chicago "because it is considered an ideal center for this sort of industry due to the abundance of raw materials accumulated here for this process and a market amply sufficient to consume the product, thereby eliminating the necessity of costly freight rates to and from the mill".

The original plant was erected in 1921, operated as the Waterway Paper Products Company. At that time it manufactured only newsprint. Several years later International Paper Company bought it, dismantled the plant in 1933 and it has been standing idle since. The new owner will confine its activities to paper products and will not make newsprint. Alfred B. Geiger, president of the Hall Printing Company, is chairman of the board of the Waterway Board and Paper Company. E. M. Hendelson is president and his brother, D. H. Mendelson, is secretary and treasurer.

Court Battle Over Paper Containers Resumed

The court battle over the proposed use of paper bottles for milk in Chicago resumed this week as the Fieldcrest Dairies continues efforts to secure an injunction restraining the Chicago board of health from interfering with the sale of milk in paper bottles. Dr. Raymond Sanborn, head of the Geneva, New York, experimental station, was the major witness, testifying that during his experiments over several years the paper bottles have kept milk more pure than glass bottles. The company and city reached a deadlock earlier in the week regarding tests of the containers asked by the board of health. These tests were to determine whether milk would be absorbed into the paraffined paper and the effect of the paraffin process on bacteria in the paper, if any. S. E. Dean, Jr., head of the company, testified that he repeatedly during the last two years had offered materials to the board of health for the tests but that the board did not reply to his offers. General counsel for the city felt that tests should be made under actual dairy operating conditions and that only one month would be required to make the tests according to authorities at the University of Illinois. Whether or not the new tests will be made, or present testimony accepted, remains the debatable question as paper containers continue to get a world of free advertising in the Chicago press.

Midwest Paper Trade More Active

A slight increase in activity was apparent in the Chicago paper market following the Memorial day holiday. Demand was more active in most grades and the orders indicated a trend toward larger quantities. Markets continued to remain fairly stable and, according to reports, more or less "set" for the summer slump which is not expected, locally, to be as pronounced as in the past due to a leveling of demand.

Specifically, sulphites had a fair week with increased activity while the entire bond and ledger list indicated a similar "lifting". Books and covers reported no change. Groundwoods were in fair demand and newsprint also moved in a more optimistic vein, according to local reports. Paperboard offices were favorably reviewing general conditions while the entire kraft market evidenced a stronger position than at a comparable time last year. Waste papers were somewhat weak though indications were that the Chicago market was stronger than Eastern centers.

British Guests at S.A.P.I. Outing

The initial golf outing of the Salesmens Association of the Paper Industry, midwest division, was

(Continued on page 27)

News of the Wisconsin Paper Industry

Kimberly-Clark To Hold Annual Safety Day On June 14—College Students Enroll In Institute of Paper Chemistry — Disposition of Estate of Late G. E. Buchanan—W. F. Ashe To Head Department — Other News.

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., June 5, 1939—Kimberly-Clark Corporation will hold its second annual Safety Day Wednesday, June 14, at the Lakeview mill park, Neenah, Wis. Employees of the Lakeview, Badger-Globe, Kimflex and Kimlark mills of Neenah, and the Atlas mill of Appleton, Wis., will take part.

The program will start at 2 o'clock in the afternoon and will last through the evening. Safety awards will be presented, and talks will be given by corporation officials and superintendents, and perhaps by a national known speaker. Musical safety sketches will be presented. Each department will have on display a safety booth, showing some of the phases of safety, accident prevention or some similar project. Out-of-town persons will be given an opportunity to make a tour of the Lackeview mill.

Students Enroll at Institute of Paper

Fifteen graduates of various colleges and universities have been selected for the first year class of the Institute of Paper Chemistry, Appleton, Wis., to enter next fall. They come from fourteen states, and make up the eleventh class to be enrolled.

Following are the enrollees and the institutions from which they are graduating:

Daniel Otis Adams, Portland, Me., Oberlin college; Archie J. Deutschman, Jr., Chicago, University of Illinois; Paul B. Hansen, Yakima, Wash., State College of Washington; James J. Harrison, Conrad, Mont., Montana State College; John M. Jernigan, Brundidge, Ala., University of Alabama; George D. Knight, Selma, Ala., Alabama Polytechnic Institute; Edwin J. Loutzenheiser, Jr., Gothenburg, Nebr., Ohio State University; John M. McEwen, Bremen, Ohio, Ohio State University; George L. Montross, Winterset, Ia., Grinnell College; Jules J. Perot, Jr., Shreveport, La., Centenary College; Frederick B. Shellhorn, Glenside, Penn., University of Pennsylvania; Robert J. Van Nostrand, Wauwatosa, Wis., Lawrence College; Philip Edwin Schick, Van Vert, Ohio, Harvard University; John G. Turk, Hillsboro, Tex., University of Texas; Albert P. Yundt, Atlanta, Ga., Georgia School of Technology.

Dr. Kress Tells of Experiences in Japan

Experiences in Japan, China and Russia on a recent trip to Europe and the Orient were recounted by Dr. Otto Kress, technical director of the Institute of Paper Chemistry, Appleton, Wis., at the closing banquet Saturday evening, May 27, at the Conway hotel, Appleton, Wis., of the Northwest division of the American Paper and Pulp Mill Superintendents Association. E. W. Peterson, Mosinee Paper Company, Mosinee, Wis., chairman of the division, presided, and P. J. Massey, Combined Locks Paper Company, Combined Locks, Wis., acted as toastmaster.

Although Dr. Kress found excitement here and there in the Chinese-Japanese war sections, he is of the opinion that there is no danger of aggression against the United States. He had letters of introduction, he said, to numerous places and institutions he wanted to see in Russia, but was forbidden contact. A woman guide assigned the party on arrival there had a specific list of sightseeing points, and no others were permitted.

W. F. Ashe To Head New Department

William F. Ashe of Kaukauna, Wis., has been appointed by Gov. Julius P. Heil to head a new state department of research, created at the current session of the Wisconsin Legislature. Mr. Ashe resigned last year as personnel director of the Thilmany Pulp and Paper Company, Kaukauna, to become director of a newly created State Department of Commerce, a bureau abolished this spring by the Legislature. His former office paid a salary of $7,000 a year, and the new one will pay $5,000.

Mr. Ashe's new division is set up in the executive office at the capitol at Madison, Wis., to investigate, at the direction of the governor "any irregularities" and "all phases of operating cost and functions" of state agencies "for the purpose of effecting the elimination of unnecessary state functions, avoiding duplication, reducing the cost of administration and increasing efficiency."

The Legislature has lacked any definite research in the past on which to base its budget and appropriations, and the department to be established by Mr. Ashe will analyze all functions, operations and costs to determine the financial needs of the departments of government.

New Coal Facilities To Supply Mills

A new coal dock is being established on the Fox River at Green Bay, Wis., by the F. Hurlbut Company. The contract has been awarded to the Waterways Engineering Company, Green Bay. A slip 2,000 feet in length will be dredged, and dock facilities will be constructed. The addition of this dock will give increased facilities for handling coal received by Great Lakes vessels and reshipped by barge and truck to paper mills of the Fox River Valley.

Paper Mills Expected To Reach Agreement

The Wisconsin Public Service Commission, Madison, Wis., has postponed until June 30 a hearing on complaints regarding the water level at the Plover, Wis., dam on the Wisconsin River. In the meantime the Whiting-Plover Paper Company and the Wisconsin River Paper and Pulp Company, Stevens Point, Wis., expected to reach a satisfactory agreement as to the water level to be maintained.

Disposition of Estate of Late G. E. Buchanan

Final disposition has been made of the estate of the late Gustavus E. Buchanan, secretary of Appleton Wire Works, Appleton, Wis., in probate court

at Appleton. The widow will receive $131,572.60. William Buchanan, a son who is now president of the concern, will receive $19,541.48. Two daughters, Betty Buchanan and Mrs. Josephine Lenfesty, and another son, James, will receive $48,311.48 each. The Masonic lodge at Appleton receives $2,000, the Y. M. C. A. $2,000, and the First Congregational Church, $3,000.

Pending completion of inventory of the estate of the late Lewis L. Alsted, president of the Combined Locks Paper Company, Combined Locks, Wis., the executors have posted $95,000 with the county treasurer at Appleton, Wis., to cover inheritance taxes.

Nekoosa-Edwards Supply Recreation Center

Nekoosa-Edwards Paper Company, Nekoosa, Wis., has placed a recreation center at the disposal of its employees for the season. It is a bathing beach and picnic grounds at Nepco Lake, the storage reservoir for its power dams now a scenic spot. Employees are given passes permitting them to use the facilities.

Finch, Pruyn Extend Agreement

[FROM OUR REGULAR CORRESPONDENT]

GLENS FALLS, N. Y., June 5, 1939—A conference held here during the past week has resulted in the signing of a contract extending the present wage and working agreement at Finch, Pruyn & Co. until May 11, 1939. Labor relations have been satisfactory between the company and employees since the first union agreement was signed in 1918. An official of the company also announced that orders on hand are believed to be sufficient for full time operations for the next year. Among the representatives at the conference were Joseph P. Addy, an official of the International Brotherhood of Papermakers, and John P. Burke, president of the International Brotherhood of Pulp, Sulphate and Paper Mill Workers. Representing the company with Maurice Hoopes, president, was George K. Walker, manager of manufacturing. Both company officials and representatives of the firm's several hundred employees spoke highly of the cordial relations existing between the company and the workers. Also represented at the conference were the International Association of Machinists, International Brotherhood of Carpenters and Joiners of America, International Brotherhood of Steam Firemen and Oilers, and the International Brotherhood of Electricians.

Mississippi May Get Paper Plant

"Former Governor Gordon Browning," according to a press dispatch from Jackson, Tenn, "has recently been in northeast Mississippi on a trip believed to have been for the purpose of investigating the possibilities of establishing a pulp paper manufacturing plant, it was learned today.

"Residents of Tishomingo county, Miss., were optimistic about the possibilities of a plant being established to manufacture newsprint from that section's plentiful supply of pine timber.

"Asked by long distance telephone for a comment on the report, Mr. Browning, at Huntingdon, said there was no announcement at present.

"Sites for the plant in Tishomingo county, reportedly in the vicinity of Burnsville or Iuka, not far from the southern shoreline of Pickwick reservoir, were reportedly under consideration."

Unveil Plaque to Herty and Garvan

A plaque to the memory of Dr. Charles Holmes Herty and Francis Patrick Garvan was unveiled March 27 at the site of the mill of the Southern Paper Mills, Inc., now in process of erection at Herty, Texas, by Ernest L. Kurth, president of the company. The plaque bore likenesses of the two gentlemen whom it honored together with the following inscription: "The first plant for making commercial newsprint paper from Southern pine. This institution is the fruit of the genius and devotion of two great Americans, Francis Patrick Garvan and Charles Holmes Herty."

The plaque is the work of Allie Virginia Tennant of Dallas.

The address of the day was delivered by G. B. Dealey, dean of Texas newspaper publishers and president of the *Dallas Morning News*, to whose public spirit and unselfish efforts for the advancement of Texas, Mr. Kurth and other speakers paid tribute.

"History is being made on this auspicious day." Mr. Dealey said in the course of his carefully prepared address. "The coming of this pioneer industry to East Texas is but the forerunner of even greater things. Not only farmers and businessmen, but all East Texas will benefit from this enterprise, which will assure the well being of thousands of workers in mill and forest, all of whom in turn owe a debt of gratitude to the two great scientists who blazed the trail in a new field."

Among the distinguished visitors who briefly spoke was Louis Calder, president of the Perkins-Goodwin Company of New York under whose direction the paper mill is being built. He told of his association with Dr. Herty, the unselfish scientist who worked untiringly to give the piney woods people a new source of income, and of Mr. Garvan, who had the courage and vision to back the scientist with actual cash when further paper research without his timely help would have been impossible.

"In all my experience of building paper mills I never knew of one which had such a lot of favorable aspects—honest, intelligent leadership, an enterprising group of Texas and Southwestern newspaper publishers to guarantee the consumption of the newsprint the mill would produce," Mr. Calder said. "There will be more paper mills in the future, but I doubt if another will start under such ideal circumstances."

E. K. Gaylord, publisher of the *Daily Oklahoman* and past president of the Southern Newspaper Publishers Association, under whose regime the pine newsprint plant was launched, briefly added his felicitations to the occasion.

Mr. Kurth as master of ceremonies, received an ovation, he introduced John D. Ewing, publisher of the *Shreveport Times* and president of the Southern Newspaper Publishers Association, which not only backed the mill with a promise to consume its production of newsprint for five years, but actually subscribed $425,000 to its capital fund.

Watab Net Loss $41,260

Watab Paper Company, for 1938, report a net loss of $41,260, compared with net income in 1937 of $16,105, equal to $7.04 each on 2,287 preferred shares.

Canadian Pulp and Paper Outlook Improved

Better Sentiment Reflected As Newsprint Shipments For May Rise Above Same Month Last Year—G. H. Davidson Opens Negotiations For Labrador Pulp Mill Project—L. J. Belnap Honored—Other Industrial News.

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., June 5, 1939—Whether it be the stimulating effect on general business of the visit of their Majesties the King and Queen, the better news from Europe, or the opening of navigation on the St. Lawrence—or perhaps a combination of all three—the fact remains that there is a distinctly improved sentiment in pulp and paper circles here in respect to the outlook. It now seems to be accepted that Canadian newsprint shipments for May will be shown well above those for May last year and more than the usual seasonal gain over April.

Canadian Newsprint Shipments Gain

The Financial Times, which follow the fortunes of the industry closely, says in its current issue:

"May shipments were bolstered by a substantial movement of newsprint to overseas markets. In April, due to late opening of navigation this year, only 20,000 tons were shipped overseas. The belated movement was made up in May, however, and total exports from ocean ports may be as much as three times those of April.

"Newsprint consumption in the United States has improved further. April consumption in the States was up 4.2% over like 1938 month, and a greater gain over 1938 is anticipated for May.

"As result of resumption of overseas shipments, stocks of newsprint held for European consumers have been lowered the past month, and total North American stocks are now down to around 'normal'. In April, there was a further decline in publishers' stocks, of 20,000 tons, but this was offset by increase in manufacturers' stocks.

"A year ago, newsprint consumption in the United States was falling, as contrasted with upward trend this year, so production figures are likely to continue to show favorable comparisons in June."

Montrealer Backs Labrador Mill Project

Gerald H. Davidson, of Montreal, is in negotiation with the Commission of Government in Newfoundland, in respect to a project for utilizing lumber and pulpwood in Labrador, and ultimately for establishing a plant there for the manufacture of sulphite pulp.

The proposal, submitted to the Newfoundland Government by the Montrealer, calls for the obtaining of rights over 1,000 square miles near Lake Melville in Labrador, about 100 miles from the Quebec border. Davidson seeks a 75-year lease at an annual rental of $2 a mile and the right to free export of timber.

His company would establish a community in the area and guarantee to cut and ship 60,000 cords a year in the first five years. In another five years, the rate would be at 100,000 cords. Stumpage would be paid at 25 cents a cord in the first five years, rising to 75 cents.

The promoter estimated operations would employ 500 men in summer and 1,200 in winter. Ultimately, a plant for the manufacture of sulphite pulp might be established.

Gerald H. Davidson is secretary of the Montreal firm of McFarlane Son and Hodgson, Limited. C. H. McFarlane, president of the company, interview in Montreal, said that Mr. Davidson had been working on the project for some time, adding that the plan was not submitted on behalf of his firm.

Honor for L. J. Belnap

Today (June 5), L. J. Belnap, of Montreal, president of Consolidated Paper Corporation, is being honored by the University of Nebraska, his alma mater, with an honorary degree of Doctor of Engineering at the 68th annual commencement exercises. Mr. Belnap is also president of St. Maurice Valley Paper Company, chairman of the executive committee and director of Worthington Pump and Machinery Corporation of New York, chairman of the board of U. S. Hoffman Machinery Co., New York, and is a director of the Bank of Montreal, Dominion Engineering Works, Ltd., Canadian Locomotive Co. Ltd., Worthington Simpson Ltd., of London, England, and Anticosti Shipping Co., Ltd.

Born in Burnoak, Michigan, Mr. Belnap took his B.Sc. degree at the University of Nebraska and, through his association with Worthington Pump and its British affiliate, established himself as a leader in the machinery industry of two continents.

Domiciled in Westmount for some years, Mr. Belnap was invited to take over the presidency of Consolidated Paper Corporation, formed in the fall of 1931 as a reorganization of the former Canada Power and Paper Corp.

Paper Box Combine Charged

There was a spirited discussion in the House of Commons on Thursday last over the paper box business, several members urging action against Canadian manufacturers on the ground that they constituted a "combine." It was pointed out under the tariff law removal of the protective duty might be ordered if the companies were found to be abusing their tariff protection, whereas the Hon. Norman Rogers, Minister of Labor, said the proper course was that prescribed by the Combines Law, which was action by the province or provinces concerned.

Brighter Outlook for Pulpwood

From Saint John, N. B., it is reported that available figures would seem to indicate that some 500,000 cords of pulpwood will be shipped from New Brunswick and Nova Scotia this year to Germany and winter-cut pulpwood is being shipped weekly.

Stating that a brighter outlook at home, in Europe and in the United States points to an increased demand for New Brunswick lumber in the near future, Hon. F. W. Pirie, New Brunswick Minister of Lands and Mines, is among those in this part of Canada who look for a sharp "pick-up" in lumbering.

Financial News of Pulp and Paper Industry

Annual Report of Canadian International Shows Loss — Minnesota & Ontario Issues Quarterly Statement—Canadian Wallpaper Manufacturers Announce $80,415 Profit — Increased Earnings For Central Paper Co.

New York Stock Exchange

High, Low and Last for the Week Ending June 7, 1939

	High	Low	Last
Armstrong Cork Co.	40⅛	38¾	39
Celotex Corp.	12⅝	12¼	12⅜
Celotex Corp., pf.	66	66	66
Certain-Teed Products Corp.	8¼	7⅞	7⅞
Certain-Teed Products Corp., pf.	29½	28¼	29½
Champion Paper & Fiber Co.	21¾	21	21⅛
Champion Paper & Fiber Co., pf.	101	98½	101
Congoleum-Nairn Co.	23⅛	22¼	23
Container Corp. of America	11⅝	10⅞	11⅛
Continental-Diamond Fibre Co.	7½	7⅛	7½
Crown-Zellerbach Co.	10¾	10⅛	10½
Crown-Zellerbach Co., pf.	81¾	78½	81¾
Flintkote Co.	21¾	20½	21½
Robert Gair	2⅜	2½	2⅜
Robert Gair, pf.	9	8½	9
International Paper & Power	8⅞	8⅜	8¾
International Paper & Power, pf.	33¾	31½	33¼
Johns-Manville Corp.	76½	74	76
Johns-Manville Corp., pf.	132	132	132
MacAndrews & Forbes	29	29	29
MacAndrews & Forbes, pf.	130	130	130
Masonite Corp.	41¾	40½	41¾
Mead Corp.	8¾	8¾	8¾
Mead Corp., pf.	58	58	58
Paraffine Companies, Inc.	46	46	46
Paraffine Companies, Inc., pf.	101½	101½	101½
Ruberoid Co.	22⅛	22⅛	22⅛
Scott Paper Co.	50½	49⅝	50½
Sutherland Paper Co.	28	27¾	28
Union Bag & Paper Corp.	8⅝	8¼	8⅜
United Paperboard Co.	4⅝	4⅝	4⅝
U. S. Gypsum Co.	90	85½	90
U. S. Gypsum Co., pf.	177	175½	177

New York Curb Exchange

High, Low and Last for the Week Ending June 7, 1939

	High	Low	Last
American Box Board Co.	7	7	7
Brown Co., Pf.	14	13½	13½
Great Northern Paper	36½	36½	36½
St. Regis Paper Co.	2⅛	2	2⅛
Taggart Corp.	3¼	3	3

Canadian International Losses

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., June 5, 1939—The annual report of the Canadian International Paper Company and subsidiary companies for 1938 shows consolidates net loss for the year, after interest, depreciation, depletion and other charges, of $3,211,343, against a consolidated net loss of $686,303, same basis, for 1937, and a net loss of $1,836,966 in the 1936 period. Sales for the period showed a sharp reduction, $31,614,743 comparing with $49,027,295 for 1937. Operating profit available for interest charges, subject to depreciation and depletion, was $3,472,226 against $8,039,210 a year ago. Interest charges totalled $4,220,776.

The balance sheet reflects the sale of the Newfoundland subsidiary, capital assets at $83,833,352 comparing with $122,131,533 a year ago. Due to sharply lower inventories and accounts receivable working capital has been reduced from $18,702,219 to $14,808,734. Total assets at $111,564,656 compares with $156,934,361 a year ago.

M. & O. Earns $256,569

A profit of $256,569, before depreciation, depletion and deferred interest, is reported by trustees for Minnesota & Ontario Paper Company for the first quarter. On the same basis, the profit for the corresponding 1938 quarter amounted to $181,414. After depreciation and depletion aggregating $219,829, profit amounted to $36,740, compared with a loss of $63,740 after depreciation and depletion aggregating $245,154, for the 1938 quarter.

Net loss after providing for interest accrued and not paid of $696,488 and before extraordinary charges amounted to $659,748, compared with $714,932 after provision for interest accrued but not paid of $651,192 in the preceding year. Extraordinary charges of $43,999 settlement of claim for crown dues increased the loss to $703,748. Figures for both years are exclusive of those of National Pole & Treating Co. Trustees state that joint meetings have been held between representatives of bondholders group and representatives of the larger unsecured creditors for the purpose of reviewing extensive analysis and studies. A plan may be submitted in the near future.

Wallpaper Mfrs. Net $80,415

A brief statement from Canada Wallpaper Manufacturers, Toronto, announces net profit of $80,415 for the fiscal year ending on April 30. That compared with profit of $158,277 for the previous fiscal period.

The same statement sets forth that directors had recommended the payment "of a first and final dividend for the year ending April 30, 1939, of 50 cents a share." The dividend if approved by shareholders at the annual meeting, called for June 22, will be payable on and after July 11, to shareholders of record July 4.

During the 1937-38 fiscal period, earnings amounted to $1.22 per share on the combined "A" and "B" stock. Out of that dividends amounted to $1 a share. Earnings for the 1938-39 fiscal year, as indicated, amounted to 62.3 cents a share, with dividend prospects of 50 cents.

Central Earns $9,888 in First Quarter

Earnings of the Central Paper Company for the first quarter of this year were $9,888 as against a net loss of $23,072 for the corresponding period a year ago. Those for nine months, ended March 31, were $42,715 as against $56,520 for the corresponding months of 1937 and 1938.

Gross sales of the company were $686,089 for the first quarter of this year as against $745,563 for the first quarterly period of 1938. For nine months ended March 31, gross sales aggregated $2,041,370 and those for the similar period a year ago, $1,852,093. Net income for the nine-month period, ending in March, was $42,715 against $56,520 for the corresponding period ending March 31, 1938. Working capital was $805,991 on March 31, this year, making the ratio approximately seven to one of current assets to current liabilities.

Tentative Program for Superintendents Annual Convention

The following is the tentative program for the Twentieth Annual Convention and Exposition of the American Pulp and Paper Mill Superintendents Association to be held June 12 to 15 inclusive with headquarters at the Wardman Park Hotel, Washington, D. C.:

MONDAY, JUNE 12

All day reception and get-together for early arrivals. Registration.

7:00 P. M.—Exhibitors' Dinner.

TUESDAY, JUNE 13

9:30 A. M.—Registration. Exhibits.

11:00 A. M.—Business Meeting. Invocation. Memoriam. Address of Welcome—E. Seal, Corporation Counsel, District of Columbia. Reply—H. H. Harrison, Crystal Tissue Company.

12:20 P. M.—Men's Luncheon, Wardman Park Hotel. Toastmaster—Mr. H. R. Harrigan, General Manager, District of Columbia Paper Manufacturing Company, Washington, D. C. Speaker—Hugh Clegg, Assistant Director, Federal Bureau of Investigation, Washington, D. C.

2:00 P. M.—General Conference. "The Handling of Paper"—George Ortleb, Deputy Public Printer. "Paper Defects"—L. K. Johnson, Assistant Foreman, Main Pressroom. "The Effect of Humidity on Paper and Printing"—Wm. H. Dahl, Foreman, Postal Card and Money Order Section. (All above speakers are from the Government Printing Office.)

Dine where you will.

7:45 P. M.—Buses to wharf. Boat trip on Potomac River—Dancing on boat.

WEDNESDAY, JUNE 14

9:15 A. M.—Group Meetings (See below).

Lunch where you will.

1:00 P. M.—Golf—Kenwood Club. Skeet Shoot—National Capitol Skeet Club. (Alternative)—Buses leave for: Trip Through Government Printing Office and Federal Bureau of Investigation, J. Edgar Hoover, Director.

7:30 P. M.—Joint Dinner and Special Entertainment.

Group Meetings

Chemical Pulp—Mr. H. E. Karberg, Chairman, Alliance Paper Mills, Ltd., Merritton, Ont. "Control Instruments in a Modern Pulp Mill"—C. D. Demers, Taylor Instrument Companies, Rochester, N. Y. "A Review of European and American Bleaching Practices"—T. W. Toovey, Pennsylvania Salt Manufacturing Company, Philadelphia, Pa. "Some Applications of Corrosion Resisting Metals in the Pulp and Paper Industry"—F. L. LaQue, International Nickel Company, New York City.

Plant and Power Engineers—Mr. F. W. Johnson, Chairman, Rhinelander Paper Company, Rhinelander, Wisconsin. "Steam Turbines for Paper Mill Application"—Mr. K. S. Kramer, Westinghouse Electric and Manufacturing Company, Philadelphia, Pa. "Modern Steam Generators"—Prof. A. G. Christie, Johns Hopkins University. "Horsepower Requirements for Preparation of Various Paper Stocks"—Dr. Manson Sutherland, Sutherland Refiner Corporation, Trenton, N. J.

Coated Papers—O. W. Callighan, Chairman, Edgar Brothers Company, New York City. "Paper Machine Filming Processes"—Peter J. Massey, Combined Locks Paper Company, Appleton, Wisconsin. Question Box.

Fine Papers—James Rogers II, Chairman, J. & J. Rogers Company, Ausable Forks, N. Y. "Rubber Covered Rolls for Paper Machine"—W. E. Brown, Manager, Chemical Roll Division, American Wringer Company, Woonsocket, R. I. "The Dryer Felt"—Charles K. Dillingham, William L. Barrell Company, Boston, Mass. "Starches and Sizing"—Mr. Roland Smith, Stein-Hall Manufacturing Company, Chicago, Ill. Question Box.

Tissue—Mr. Hilliard D. Cook, Chairman, Sweet Bros. Paper Manufacturing Company, Phoenix, N. Y. "Technical Control in a Tissue Mill"—Mr. H. H. Harrison, Crystal Tissue Company, Middletown, Ohio. Report of Survey. Round Table Discussion.

Board—C. Gildenzopf, Chairman, Schmidt & Ault Paper Company, York, Pa. "Waste Paper Stock Material Prepared by the Double Selective Screening System"—Arno W. Nickerson, Consulting Engineer, New York City. "Modern Electric Drives on Board Machinery"—F. M. Roberts, General Electric Company, Schenectady, N. Y. "Utilization of Waste Material in Board Mills"—Mr. E. C. Gildenzopf, Schmidt & Ault Paper Co., York, Pa. Round Table Discussion led by Mr. Oscar Stamets, Riegel Paper Corporation, Riegelsville, N. J.

Finishing, Storing, and Shipping—Mr. Wallace Shymanski, Chairman, Marathon Paper Mills Company, Rothschild, Wisconsin. "Costs and Standards in Finishing Room Operation"—Mr. William Riegers, Beckett Paper Company, Hamilton, Ohio. "Shipping Paper Safely to Customer"—Mr. W. L. Ennis, Claim Prevention Dept., The Milwaukee Road, Chicago, Ill. "How to Handle Finishing Room Broke"—Round Table Discussion.

News Print and Wrapping—J. J. Priest, Chairman, Albemarle Paper Manufacturing Company, Richmond, Virginia. "Beater Room Control"—Arthur B. Green, Needham, Mass. "Pulpers and Refiners"—Shartle Brothers Machine Company, Middletown, Ohio. "Operation of the Hydrafiner"—Mr. Edw. M. Root, Dilts Machine Works, Fulton, N. Y.

THURSDAY, JUNE 15

9:30 A. M.—General Conference. F. W. Lodding, Lodding Engineering Corporation, Worcester, Mass., "The Development of Flexible Doctors." George K. Gibson, Sales Manager, Mosinee Paper Mills Company, Mosinee, Wis. "Making Calcium in Water Behave"—R. E. Hall, Hall Laboratories, Pittsburgh, Pa. Round Table Discussion.

12:20 P. M.—Men's Luncheon, Wardman Park

Hotel. Toastmaster—F. G. French, President, French Paper Mills, Niles, Mich. Speaker—Mr. George K. Gibson, Mosinee Paper Mills Company, on "Our Amazing Industry."

2:30 P. M.—Joint Reception and Entertainment in Exhibit Hall.

7:30 P. M.—Joint Banquet, Wardman Park Hotel. Toastmaster—W. M. Shoemaker, Secretary, National Vulcanized Fibre Co., Yorklyn, Del. Speaker—Mr. W. J. Cameron, Ford Motor Company, Detroit, Mich.

Ladies' Program

MONDAY, JUNE 12

All day reception and get-together for early arrivals.

TUESDAY, JUNE 13

11:00 A. M.—Bus to White House.

Noon—Luncheon at Mayflower Hotel.

P. M.—Bus to Capitol, Supreme Court Building, Library of Congress, Folger Shakespearian Library, return to hotel via Embassies and Legations.

Dine where you will.

7:45 P. M.—Bus to wharf. Boat trip on Potomac River—Dancing on boat.

WEDNESDAY, JUNE 14

10:00 A. M.—Ladies Golf. Sightseeing and Shopping.

Lunch where you will.

1:30 P. M.—Bus to Department of Justice. Trip through Federal Bureau of Investigation. (Ladies may return to hotel by bus or remain downtown sightseeing and shopping.)

7:30 P. M.—Joint Dinner and Special Entertainment.

THURSDAY, JUNE 15

10:30 A. M.—Ladies Bridge. Lunch where you will.

2:30 P. M.—Joint Reception and Entertainment in Exhibit Hall.

7:30 P. M.—Joint Banquet, Wardman Park Hotel. Toastmaster—Mr. W. H. Shoemaker, Secretary, National Vulcanized Fibre Co., Yorklyn, Del. Speaker—Mr. W. J. Cameron, Ford Motor Co., Detroit, Michigan. Dancing—Entertainment.

Steven & Thompson Changes

A certificate of a change in the number of directors and change of location of the office of the Stevens & Thompson Paper Company from North Hoosick, N. Y., to Greenwich, N. Y., pursuant to requirements in reorganization of the firm under section 77-B of the national bankruptcy act has been filed with the secretary of state and also in the Rensselaer county clerk's office.

The certificate states that there were previously nine directors but under the new arrangement there will be "not less than five nor more than nine." The directors as now stated are Chester G. Wager, Troy; Howard B. Thompson, North Hoosick; Fred N. Stevens, North Hoosick, and John W. Bright, Greenwich.

According to information obtained from Mr. Bright, general manager of the company, the filing of these papers constitute a legal formality necessary to the carrying out of the reorganization plans previously announced. The actual removal will take place some time within the next few months.

Paper Strips In Battle With Time

Five long strips of varnish-coated paper hanging on a wall in the Westinghouse Research Laboratories in East Pittsburgh, Pa., have just completed an aging test extending over 18 years.

Three of the five strips are still pliable and strong. Two are brittle, and crack when creased. Upwards of two dozen others, coated with various types of electrical insulating varnish in 1921 as part of an inquiry into the properties of such varnishes, have disintegrated during the years. All, however, have yielded an unusual "life story" of cellulose, which was summarized in a paper "Deterioration of Cellulose in Electrical Insulation Applications," by Dr. H. P. C. Weber, to be presented during the American Chemical Society's symposium on cellulose, April 3-7, in Baltimore, Md.

Back in 1921, Dr. Weber began an investigation of the effect of acids, particularly the volatile ones, formed during the drying of insulation varnishes. A varnish manufacturer submitted more than 30 samples of known composition. These were tested chemically primarily for fatty acids formed in drying, then subjected to so-called slip tests in which strips of a standard grade of bond paper were dipped into the varnishes, drained then baked for 16 hours at 100 degrees centigrade. The strips were then rolled up, placed in screw-capped jars, and stored in the laboratory.

Fourteen years later, in 1935, the strips were taken from the jars, mounted and photographed. In some, the varnish-coated paper or cellulose strips were so brittle that they crumbled. In others, the paper would break if bent or creased. Still others—and these were in the minority—could be creased without breaking.

Comparing the then 14-year-old strips with results of the earlier chemical tests, Dr. Weber found that those which had disintegrated most rapidly had been treated originally with varnish which formed the most acid on drying. Conversely, the five strips which were then still pliable, hence best protected, had been immersed originally in varnish which yielded the least acid.

Dr. Weber pursued his studies further, this time using another form of cellulose—wood. Sticks of straight-grained ash dowel material were impregnated in duplicate with a number of substances. After impregnation, one specimen of each treatment was baked in the open for 50 hours at 150 degrees centigrade. The other was baked at the same temperature and for the same time in a sealed glass tube in which a partial vacuum had been created.

It was found that the specimens baked in the open suffered little damage in varying degrees, and in some instances the wood was actually charred. Crushing tests applied to small sections of each original sample showed those heated in the open to be more than twice as strong, on the average, as those heated in sealed tubes.

The sealed samples revealed again that acids formed during the drying process hastened the breakdown of the cellulose. In the case of the open samples, these products escaped and little further harm was done.

As a result of the experiments, Dr. Weber concluded that up to 150 degrees centigrade little damage is done cellulose by oxidation due to air alone, but even slight amounts of acids hasten deterioration.

Hunter Paper Museum Opens at M. I. T.

[FROM OUR REGULAR CORRESPONDENT]

CAMBRIDGE, Mass., June 5, 1939—The first type of "wove" paper-making mould, of ramie, first used in 105 A. D. and one used in 200 A. D., which was a step further when the transfer moulds were invented, made of bamboo, on the combination of which today's paper industry rests, were shown at the opening of the Dard Hunter Paper Museum at the Massachusetts Institute of Technology today, with Mr. Hunter, assisted by his son, Dard Hunter, Jr., in charge.

Museum Is Comprehensive

The museum is comprehensive, a collection which is the achievement of Mr. Hunter's complete devotion to the field for about 35 years. His work has taken him many times through Europe and Asia and into the South Sea Islands. Mr. Hunter is the author of more than a dozen books and pamphlets on the subject of paper, which are shown in the museum.

The museum shows the development of papermaking from the earliest times down through the ages, with appliances of the type used in China when paper was invented during the second century. The earliest paper money, originated by the Chinese, the earliest envelopes and the earliest paper to be colored in the vat, both originated by the Koreans, are represented.

Equipment for Handmade Papers

In a section of the museum is a full-sized equipment for the making of the finest handmade papers, brought from England especially for the museum, and capable of being operated as a paper mill. This apparatus is capable of turning out about five reams of paper a day, with the help of three men.

The Hunter Museum reveals in broad aspects the fascinating techniques, the beauties, and the social influences of papermaking throughout the ages. The museum includes tools and equipment gathered from the far corners of the earth, specimens showing the complete evolution of papermaking fibers and watermarks from their first appearance.

The museum covers the field of watermarking by displaying the various tools used in producing the finest paper-marks as well as actual specimens of water-marks from the beginning of the art in 1270 to the most modern type. The feature of this collection in the museum is the original experiments of Sir William Congreve, inventor of colored water-marks.

First Papermaking Textbooks

There are shown the first European papermaking textbooks, barkbeaters from various parts of the world, white and colored paper from Burma, samples of paper made in India, model of weave loom in India, leaves of trees in India, polishing stones, paper making equipment from Kashmir, Punjab, a loom and colored paper, both from the Ghandi School; Chinese wood-blocks from the beginning of the 19th century, patterns of paper made with the wood blocks, the oldest paper in the world, papermaking equipment from Najio, Hyogo, Japan, paper made of Gampi, Mulberry and Mitsumata, bundles of fiber, ceremonial papers used for burning in China, Japanese wood blocks and tools. The most unusual thing in the exhibit is that of the world's oldest printing, a Buddhist charm printed for the Empress Shotoku of Japan about 770 A.D. The charm is printed from the Sanskrit in Chinese characters. Each charm or prayer was held in a wooden pagoda and deposited by the Empress in various Japanese temples where many now remain. The earliest printing of China dates from 808 A.D.

Many photographs are also to be seen.

Contains About 2000 Pieces

In the museum are about 2,000 pieces, but Mr. Hunter has approximately 8,000 more, which are not shown for lack of space and because some of them are duplicates. He has thousands of decorative papers to be catalogued and later to be shown.

The most modern requirements of paper-making have not been overlooked and in time the museum will contain exhibits of present day handmade papers and show their relation to the graphic arts.

On June 12, Mr. Hunter will receive the degree of Litt. D. from Ohio State University. He has previously received the same degree from Wisconsin University.

Sangamon Paper Grading Co. Moves

The Sangamon Paper Grading Company, Inc., of Chicago, has moved to its new location at 3915 South La Salle street, occupying a three-story and basement mill constructed building, fireproof, equipped with a sprinkler system and having a siding on the Chicago Junction Railroad. New balers, conveyors, and other equipment have been installed to handle and grade waste paper and rags. The building has unloading facilities on both sides for eight trucks. All shipments are loaded and unloaded indoors.

The company has progressed steadily since its organization 21 years ago. The officers of the company are Joseph Cohen, president; Abe Cohen, vice president, and Sam Cohen, secretary and general manager. The telephone number is Boulevard 1520.

International Sells Tenements

[FROM OUR REGULAR CORRESPONDENT]

PIERCEFIELD, N. Y., June 5, 1939—The International Paper Company has announced that a block of more than 35 tenements overlooking Racquette River are now on the market. The homes, mostly two story frame dwellings, were erected during the boom times of twenty years ago when the paper mill here was among the busiest in the group owned by the company. After the paper mill suspended operations in 1933 families began moving away in order to continue in the employ of the company at Niagara Falls and elsewhere. As a result most of the tenements here have been vacant for several years. According to R. A. Buckley, superintendent, the company will dispose of the homes individually or in a block. The company plans to retain the houses on the main street of this village.

Gair Sells Sewall Island Property

[FROM OUR REGULAR CORRESPONDENT]

WATERTOWN, N. Y., June 5, 1939—Announcement is made that the Robert Gair Company, Inc., has sold its property on Sewall Island to Wilfred H. Longtin, of this city. The property includes a large tract of land, a warehouse, stone garage and a railroad siding. It was sold by the Hinde & Dauch Paper Company to the Gair concern in 1935. It was formerly owned by the International Paper Company prior to 1902 and, according to title, the property was owned by Alfred D. Remington and sold to the Watertown Paper Company in 1867. The water rights and water power were leased to the Northern New York Utilities in the summer of 1924 which concern holds the lease at the present time. The lease is extended to 1974. The purchaser has about 35,000 feet of floor space available and is placing the warehouse in condition for renting purposes. The warehouse was built about 1922 and was used for storage by the Hinde & Dauch Paper Company. It is a three-story brick building of fireproof construction and has several elevators. The machinery and equipment and the mill proper have been dismantled and the only buildings on the premises now are the warehouse and a stone garage.

Moline Lists Chain Prices

The new Moline Malleable Iron Company catalog gives complete listings and new prices of Moline malleable and combination chains and chain attachments, and of the most popular and widely used sizes of machine finished roller chain and all steel engineering type chains. Twenty-two pages are devoted to sprocket wheel listings. Capacities, weights, prices, etc. are given for types "A"; "AA"; "A-RB"; "AA-RB"; "B" and "C" Elevator Buckets, and a very thorough description together with list prices, weights, etc., is given of Moline Flight Conveyors which are said to save 25 to 50 per cent of the first cost, and to provide from 25 to 50 per cent greater capacity than other flight and scraper type conveyors. The catalog is completely illustrated. Copies may be obtained from the Moline Malleable Iron Company, St. Charles, Ill.

Dennison To Recapitalize

Dennison Manufacturing Company stockholders approved the directors' plan for recapitalization at the special meeting in Framingham, Mass., and the plan has been declared operative, it was announced last week.

Directors hope to declare the plan consummated as of July 1, and stockholders are urged to deposit their stock before that date.

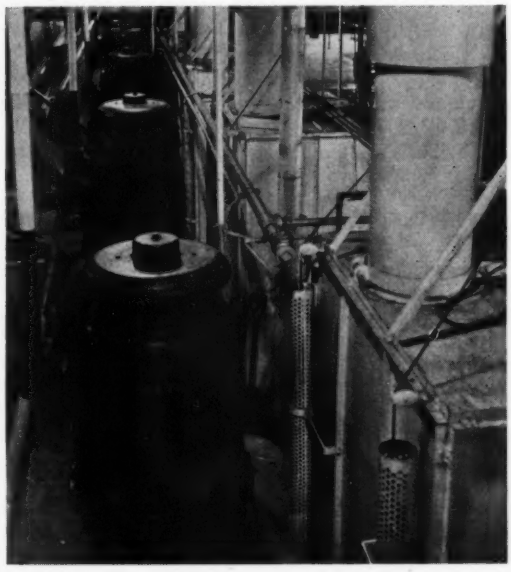
Finnish Newsprint Capacity

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., June 5, 1939—Finnish newsprint mills at the end of 1938 were estimated to be capable of turning out between 530,000 and 580,000 metric tons of newsprint, according to reports from the office of the American Consulate, Helsinki.

Vertical Helical Speed Reducers

The Foote Brothers Gear and Machine Corporation, Chicago, Ill., has installed a battery of large vertical helical speed reducers in a large paper mill for driving high density bleachers, which according to reports, is an interesting, unusual and highly efficient method. This drive is said to provide a smooth, efficient operation for any heavy, continuous-duty agitator. Being vertical, it occupies a minimum floor



INSTALLATION OF FOUR VERTICAL REDUCERS

space and because the motor is well off the floor, it facilitates the job of flushing the floors with a hose. Features that are outstanding in the construction of the unit are as follows:

Helical gears mounted on anti-friction bearings.

Large oversize bearing on output shaft (permitting agitator shaft assembly to be hung directly on it) eliminates need for additional radial or thrust bearings at upper end of agitator tank.

Output shaft assembly leak-proof—no oil can leak into agitator tank.

Rigidly designed housing has ample oil reservoir. Oil circulated to top bearings and gears by pump which needs no priming at any time.

Housing has machined motor adapter pad on top—this insures proper alignment of motor and reducer shaft without additional base plate.

Shreveport Waste Paper Co. Starts

SHREVEPORT, La., June 5, 1939—The Shreveport Waste Paper and Bag Company, Inc., new business here, has leased the building at 312-14 Commerce street, for a three-year period, with an aggregate rental of $4,500. Morris Rosen, Baton Rouge, is president of the organization.

According to Mr. Rosen the building will be improved and modern paper equipment will be installed, with a total investment of about $10,000. Occupancy will be had on July 1. Temporary quarters are being utilized at 94 Fannin street, warehouse "G." M. C. Grimm is the local manager.

Rules on Free Newsprint

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., June 7, 1939—Newsprint paper in rolls 16 inches or more wide can be imported into the United States free of duty, the Treasury Department last week ruled.

In a communication to Collectors of Customs dealing with this subject, Commissioner of Customs J. H. Moyle said:

The Bureau has recently had presented to it for consideration evidence relative to the widths of standard newsprint paper which are entitled to entry free of duty under paragraph 1772 of the Tariff Act of 1930 (W.S.C. title 19, sec. 1201, par. 1772), which is a reenactment of paragraph 1672 of the Tariff Act of 1922, 42 Stat. 931.

Specifications indicating what has been considered standard newsprint paper are contained in T. Ds. (1925) 40996, (1930) 44317, (1931) 45128, (1931) 45418 (4), (1937) 48945 (2), and (1938) 49763 (4).

This evidence satisfies the Bureau that at the time of and immediately prior to the passage of the Tariff Act of 1930, newsprint paper in rolls of 16 inches in width or over constituted a class of newsprint paper chiefly used in the printing of newspapers and that newsprint paper under 16 inches in width was not chiefly used in the printing of newspapers. The Bureau is therefore of the opinion that paper otherwise conforming to standard newsprint paper specifications (T. Ds. 40996, 44317, 45128 and 45418 (4)) in rolls 16 inches in width or wider belongs to a class of printing paper chiefly used, on or immediately prior to the passage of the Tariff Act of 1930, for the printing of newspapers and is free of duty under paragraph 1772 of the Tariff Act of 1930 as standard newsprint paper.

Customs officers are therefore directed that paper otherwise conforming to standard newsprint paper specifications (T. Ds. 40996, 44317, 45128, and 45418 (4)) in rolls 16 inches in width or wider shall be classified as standard newsprint paper free of duty under paragraph 1772 of the Tariff Act of 1930.

TAPPI Empire State Meets

Members and friends of the Empire State Section of TAPPI met at The Jefferson County Golf Club, Watertown, N. Y., on June 3 for their Annual Meeting. In the sports program which took place in the afternoon, Mr. R. W. Hines of the Newton Falls Paper Company captured the golf honors with both low gross and low net. The prize for blind bogie was shared by A. B. Julin, and G. R. Holmes of the Derrico Company. In the skeet and trap shooting, Kenneth Youngchild of the American Cyanamid and Chemical Corporation led the field of several expert marksmen.

Mr. James A. Lee, Managing Editor of *Chemical and Metallurgical Engineering*, was speaker at the evening dinner, his subject being "New Developments in the Process Industries". He exhibited samples of several of the newer rayon, glass, and natural and artificial rubber fabrics; also, a group of synthetic resins prepared for such varied uses as electrical insulators, safety glass, water-proofing materials, and light transmission media. Of interest particularly to the papermakers was his description of the Bentonite film recently developed at the Massachusetts Institute of Technology which exhibits many of the properties of paper.

The following officers and executive committee were elected for the year 1939-40: Chairman—R. F. Huntley, Oswego Falls Corporation; Vice-chairman—F. C. Goodwill, St. Regis Paper Company; Secretary-Treasurer—M. H. Bennett, Stebbins Engineering and Manufacturing Company.

Executive Committee: Syracuse District—C. E. Libby, N. Y. S. College of Forestry. Watertown District—W. R. Benson, National Paper Products Company. Niagara Falls District—C. J. Johnson, The Upson Company. Albany District—M. H. Maguire, Hercules Powder Company.

Those who attended were: C. E. Kinne, Mr. and Mrs. H. D. Cook, Mr. and Mrs. R. H. Fisher, Mrs. M. H. Bennett, Mr. and Mrs. H. T. Murphy, C. T. Jewell, F. G. Calkin, Harvey P. Cannon, Miss Frances Cannon, Mr. and Mrs. R. F. Huntley, Mr. and Mrs. H. M. Rice, Mr. and Mrs. C. H. Lindsly, Peter J. Abel, W. H. Roberts, Jr., S. C. Nagel, John H. Rich, Prof. and Mrs. C. E. Libby, W. B. Christie, D. B. Williams, Mr. and Mrs. Lyman Beeman, Mr. and Mrs. F. C. Goodwill, Mr. and Mrs. R. C. Shearer, Thomas Gerace, Mr. and Mrs. E. F. Marshall, L. C. Burdick, C. A. Lura, Mr. and Mrs. D. C. Mather, Mr. and Mrs. E. Davis, D. M. Shapleigh, M. J. Dupee, Mr. and Mrs. C. H. Plantz, Mr. and Mrs. Horace Corbin, W. A. Swain, Mr. and Mrs. J. D. Haskell, Sheldon Young, Mr. and Mrs. J. H. Brougham, Mr. and Mrs. A. W. Ayles, Glen Nicol, Don Morehouse, F. E. Cuddeback, W. J. O'Brien, A. B. Julin, G. W. Hill, R. Englehardt, G. Holmes, F. M. Williams, Mr. and Mrs. R. Hynes, Mr. and Mrs. M. C. Rice, Mr. and Mrs. K. E. Youngchild, Mr. and Mrs. K. L. Seeber, Mr. and Mrs. E. F. Tucker, Mr. and Mrs. J. M. Kelly, Mr. and Mrs. H. R. Wheeler, Mr. and Mrs. J. D. Bennett, Mr. and Mrs. Carl F. Richter.

To Make Aldine Award

Around June 15, 1939, a committee headed by Prof. Glen U. Cleeton, will select the winners of the annual "Aldine Award" which is donated by H. E. Gould, president of the Aldine Paper Company. It will be given to those two students in the Junior Class of Carnegie Institute of Technology's Department of Printing who have the highest and next to the highest scholastic ratings for the 1938-1939 school year.

This Aldine Award has been established for several years and is eagerly strived for by all the students. In the past, it has been won by students from all parts of the country. Its purpose is to create interest on the part of the students for better type of craftsmanship and to show that the paper and printing industry is vitally interested in the welfare of the students who eventually become the printers of tomorrow.

Century Paper Co. Moves

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., June 5, 1939—The Century Paper Company, Inc., mill agent, has removed from 596 Atlantic avenue to 137 Federal street, where they have more commodious offices and a larger warehouse.

New TAPPI Members

The executive committee of the Technical Association of the Pulp and Paper Industry has approved the election to membership and changes in grade of the following:

James A. Dean, technical superintendent, Beach and Arthur Paper Company, Paperville, Pa., has been advanced to the active grade.

Egmont N. Wennberg, superintendent, Moore & Thompson Paper Company, Bellows Falls, Vt., has been advanced to the active grade.

J. J. Forsythe, chemist, Fraser Paper Ltd., Madawaska, Me., has been advanced to the associate grade.

J. Ronald Atwater, assistant to manager, Dill & Collins Inc., Philadelphia, Pa., has been advanced to the active grade.

Oliver W. Lemke, engineer, Taylor Instrument Companies, Chicago, Ill., is a graduate mechanical engineer of the University of Illinois.

John C. Bletzinger, student, Institute of Paper Chemistry, Appleton, Wis., is a graduate of Allegheny College and Lawrence College.

George F. DesAutels, research chemist, Kalamazoo Vegetable Parchment Company, Parchment, Mich., is a graduate of Clark University with the degree of Ph.D.

John W. Bard, student, Institute of Paper Chemistry, Appleton, Wis., received a B.S. degree in Ch.E. from Iowa State College and an M.S. degree from the Institute of Paper Chemistry.

H. A. DuBois, assistant staff sulphite superintendent, Kimberly-Clark Corporation, Neenah, Wisc., is a graduate of the University of Wisconsin and has been with Kimberly-Clark for 16 years.

Miss Betty Shaw, chemist, Harry Williamson Research Corporation, New York, N. Y., is a graduate of Hunter College. She was formerly with the Robert Gair Company.

Edward L. Hill, assistant chemist, Plant and Animal Products Dept., Imperial Institute, South Kensington, London, S.W. 7, received his degrees of B.Sc. and A.R. Sc from the Royal College of Science and the Imperial College, in chemistry. He has been on the staff of the Imperial Institute for 11 years.

Frank A. Taberski, Jr., chief chemist, Imperial Paper and Color Corporation, Plattsburg, N. Y., is a graduate of Cornell University.

William H. Anderson, engineer, Stevens Paper Mills Inc., Winsor, Conn., has been reinstated. He was formerly with Westinghouse Electric and Manufacturing Company, American Writing Paper Corporation, Hollingsworth & Vose Company and Pejebscot Paper Company.

Stanley E. Sorenson, technical statistician, Weyerhaeuser Timber Company, Everett, Wash., received his formal education at the University of Minnesota.

Samuel E. Raia, control chemist, The Champion Paper and Fiber Company, Pasadena, Tex., is a 1936 graduate of the University of Texas.

James D. Studley, chief, Pulp and Paper Section, Forest Products Division, Bureau of Foreign and Domestic Commerce, Department of Commerce, Washington, D. C., was formerly with the Forest Products Laboratory, Curtis Companies, Inc. and Arkansas Soft Pine Bureau.

Bernard J. Larpenteur, district sales manager, the Dorr Company, Atlanta, Ga., has been with the Dorr Company for 10 years.

Edwin G. Rothbauer, forester, 37 Storey Lane, Yonkers, N. Y., is a graduate of the New York State College of Forestry. He was formerly with the Gair Thames Containers and the U. S. Forest Service.

Ralph E. Glading, student, Institute of Paper Chemistry, Appleton, Wisc., received an A. B. degree from Oberlin College and an M.S. degree from the Institute of Paper Chemistry. He has worked for the Consolidated Water Power and Paper Company.

Smythe Co. Holds Annual Picnic

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., June 5, 1939—The J. L. N. Smythe Company held its annual picnic on Saturday last at "Towns End Farm", Glassboro, N. J., the home of Mr. and Mrs. L. E. Martin, former company employes. Mr. and Mrs. Martin who are well known for their hospitality, also entertained the picnickers last year. Upwards of sixty employes motored to this beautiful and ideally located farm, and for the fine paper department it was a new and impressive affair, the employes of which department, prior to last July, comprised the Charles Beck Company.

The main event of the morning was a soft ball game between the "wrappers and the finers". The Misses Martinell and Miller were the mascots and were becomingly costumed for the big event. Many comic gifts were exchanged during lunch, after which President Smythe spoke briefly, and in part said: 'It has been our custom since 1928 to recognize employes who have been in the service of our company for twenty-five years; this year, however, because of the fact that there are none of our employes who have reached that 25-year milestone, I am compelled to skip by the twenty-five year group. Nevertheless, we do celebrate an outstanding event of importance to us all and the paper trade of Philadelphia as a whole—the 75th anniversary of fine papers being sold by the Charles Beck Company, which is now our fine paper department, and it is now my very great pleasure to present to you, Leon Beck, this cigarette case as a fitting testimonial of this occasion, and it is presented to you with the sincere hope that it may serve as a tangible expression of regard and good wishes which we have for you."

Paper and Cordage Outing

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., June 5, 1939—The annual outing of the Philadelphia Paper and Cordage Association will be held at the Manufacturers' Country Club, Oreland, Pa., on Wednesday, June 21. E. K. Lay, chairman of the entertainment committee, has arranged a program of sports for the afternoon, and a novel and unusual evening program of music and entertainment. The afternoon golf tournament will be in charge of E. L. Richards, chairman of the Golf Committee, while the quoit pitching contest will be supervised by John Heverly. Jack Shinners will have charge of the tennis matches. George K. Hooper and Lee Johnson are arranging an interesting soft ball contest. A large number of valuable prizes will be awarded to the winners of the various sports and a number of unusual door prizes will be given away during the dinner, which will be held in the main ballroom of the Club at 6:30.

New Flow Recorder

A new flow recorder operating to indicate and record instantaneous values of rate of flow as measured by displacement meters has been developed by Bailey Meter Company, Cleveland, Ohio. This device, which employs the Bailey synchro-meter electrical transmitting method, differs from the usual flow recording attachment for displacement meters in that it draws a graph of rate of flow against time instead of simply recording total flow over a given time. It is attached to the displacement meter body by employing the flange bolts. The displacement meter register is raised by a filler block to afford room for bevel gears and a short shaft extension is used to drive the register of the displacement meter. The bevel gears drive a shaft which operates the synchro-meter unit. No change or modification of parts of the displacement meter is required for the attachment of the synchro-meter device.

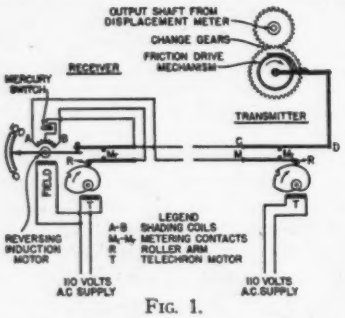


FIG. 1.

FIG. 2.

As will be noted in the diagrammatic drawing, the contact arm CD is connected to a friction drive mechanism so that operation of the displacement meter causes it to descend until contact Mt is made. Contact Mt remains closed until the constant speed cams driven by Telechron motors "T" reach their maximum throw. The constant speed cams are shaped so that the roller arm Mr descends more rapidly than the friction driven contact arm CD so that the latter is free to descend a distance proportional to the rate of flow through the displacement meter.

The recording and indicating instruments of the receiver are positioned by a reversing induction motor which runs in one direction when shading coil "A" is short circuited, and in the other direction when coil "B" is short circuited. The circuits through these coils are closed by contact Mt in the transmitter and Mr in the receiver. To maintain contacts in satisfactory operation condition at all times, these circuits are opened by the mercury switch just before the constant speed cams reach maximum throw. The mercury switch closes again before the roller arms start upward. This closes the circuit so that contacts for positioning the receiver may be made while the roller arms are rising.

The diagram illustrates conditions which prevail when the rate of flow through the displacement meter is at 50 per cent of maximum capacity. Under these conditions contacts Mt and Mr are made at the same instant so that both coils of the reversing induction motor are short circuited and no change is made in the reading of the receiver. Should the rate of flow drop to zero, the friction wheel would be stationary and the arm CD would remain at a position corresponding to maximum throw of the constant speed cam. This would cause contact Mr to close before contact Mt with the result that shading coil B alone would be short circuited and the receiver would be positioned to zero.

If the rate of flow were increased above 50 per cent of maximum, the speed of the friction wheel would be increased causing arm CD to descend more rapidly and consequently to reach a lower point so that contact Mt would close first. This would operate the reversing induction motor to increase the reading of the receiver.

Lewis W. Newcomer Dead

Lewis W. Newcomer, 77, treasurer of the Consolidated Paper Company, Monroe, Mich., died May 23 of myocarditis. He had been ill since returning from Florida last April.

A native of Elmore, Ohio, Mr. Newcomer attended the local district schools and taught school for five years. He began his business career in the produce business with the late E. C. Rauch, who was president of the Consolidated Paper Company for many years. In 1904 Mr. Newcomer organized the Monroe Binder Board Company with the late L. W. Leathers, which was consolidated in 1921 with the Boehme & Rauch Company to form the present Consolidated Paper Company. In the merger, Mr. Newcomer became treasurer and a director and had served in that capacity up to his death.

Mr. Newcomer was president of the Monroe State Bank since its reorganization in 1932 and was active in the Methodist Church and in civic bodies until recent years.

Surviving, are his widow, the former Ada Belle Rauch, two sons, Erving A., and Stanley, both of Monroe, and three daughters.

Funeral services were held at the family home and burial was in Roselawn Memorial Cemetery.

Leon F. Thiry Visits Watertown

[FROM OUR REGULAR CORRESPONDENT]

WATERTOWN, N. Y., June 5, 1939—Among the visitors here this week is Leon F. Thiry, a manufacturer of paper and pulp making equipment at Huy, Belgium, who came here principally for an inspection of the plant of the Bagley & Sewall Company. He was here for a visit to the local plant several years ago and announced that his stay would be brief. He did not know that the local company had been sold to Abe Cooper, prominent business man. He declared that business conditions are about the same here as in Europe where they are fair. He said that Belgium is continuing its policy of remaining neutral in European disputes. War fears on the continent have diminished, he said, and there is now a period of relief.

To Close Saturdays in Boston

BOSTON, Mass., June 5, 1939—The majority of fine paper merchants in Metropolitan Boston are to close their offices Saturdays from June 17 to September 2, inclusive.

LET'S GET DOWN TO HARD FACTS

In a Top Press roll, hardness means long life, resistance to wear, less grinding expense. But how about PERFORMANCE?

STONITE* is the only roll covering made of a patented compound of ebonite and granulated stone. That's where it gets its rock-like hardness, its extremely long life, its resistance to cracking, chipping, scoring, and wear.

But STONITE* has other qualities. Its granite-like surface results in a quick release, reduced pickups, less fuzz or crumbs — and a greatly reduced number of breaks.

Applied to lightweight roll bodies, it means less total weight, less danger of crushing the sheet, disturbing the fibres or wearing the felt. In short, it not only makes top press rolls wear longer and cost less, but greatly improves the safety and efficiency of operation and helps produce far better paper.

Perhaps that explains why mills in 31 countries have installed over 1700 STONITE* Rolls. And why we urge you to get the whole story as it applies to your weights and grades.

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NEW YORK OFFICE · WOOLWORTH BLDG.

Stowe-Woodward Rolls are made on the West Coast by HUNTINGTON RUBBER MILLS, INC., Seattle, Washington

Makers of **WHITE STAR** *Rubber Covered Rolls,* **TANNITE** *Couch Rolls*
STONITE *Top Press and Smoothing Rolls—All by the* **COREWELD** *Process*

Government Paper Bids

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., June 7, 1939—The Government Printing Office has received the following bids for 40,000 pounds of yellow sulphite writing paper in 32 inch rolls: Marquette Paper Company, 4.98 cents; Old Dominion Paper Company, 4.697 cents; Butler Company, 5.29 cents; Cauthorne Paper Company, 5.44 cents; Whitaker Paper Company, 4.59 cents; Stanford Paper Company, 5.35 cents; R. P. Andrews Paper Company, 5.17 cents; Barton, Duer & Koch Paper Company, 5.12 cents; and Mathers-Lamm Paper Company, 5.44 cents.

For 40,000 pounds (333,000 sheets) of 25 x 38 offset book paper: Aetna Paper Company, 5.81 cents; Maxwell Paper Company, 5.77 cents; and Howard Paper Company, 5.83 cents.

For 150,000 pounds of 22½ x 28½ manila tagboard: Fitchburg Paper Company, 6.22 cents; and Barton, Duer & Koch Paper Company, 6.45 cents.

For 48,000 pounds (200,000 sheets) of 38 x 50 supercalendered book paper: John F. Post, Inc., 4.89 cents; Mudge Paper Company, 4.76 cents; Paper Corporation of U. S., 4.9 cents; Frank Parsons Paper Company, 4.58 cents; Barton, Duer & Koch Paper Company, 4.43 cents; Stanford Paper Company, 4.91 cents; Whitaker Paper Company, 4.74 cents; Cauthorne Paper Company, 4.5 cents; Perkins Goodwin Company, 4.43 cents; and R. P. Andrews Paper Company, 4.43 cents.

For 1,440 pounds (80,000 sheets) of 21 x 32 white tissue paper: Mathers-Lamm Paper Company, 10.9 cents; R. P. Andrews Paper Company, 11 cents; and Enterprise Paper Company, 9.75 cents.

Plans for Dinner to Isaac Gilman

More than 500 leading representatives of the paper, paper box and allied trades are expected to attend the testimonial dinner to Isaac Gilman, of the Gilman Paper Company, in behalf of the United Jewish Appeal for Refugees and Overseas Needs, to be held Wednesday, June 14, at 6:30 P. M., at the Hotel Commodore, it was announced by Abraham Mazer, chairman of the industry's campaign activities.

CONFERRING ON PLANS FOR REFUGEE DINNER

Leading members of the paper, paper box and allied trades met Thursday, June 1 at the Hotel Commodore and drew up final plans for the testimonial dinner to Isaac Gilman in behalf of the United Jewish Appeal for Refugees and Overseas Needs, to be held Wednesday, June 14, at the Hotel Commodore. In the picture, starting with back row and going counter-clockwise, are: Milton Collier; Morris Gintzler, Chairman Dinner Committee; George Z. Medalie, former U. S. District Attorney; Jacob Sincoff, Treasurer, Dinner Committee; Abraham Herman, Co-chairman; A. Mazer, General Chairman; William Salzman, Co-Chairman; William Mazer; Walter Bergman; Joseph H. Simon; Joseph Mazer; William Salzer; Jack Weill.

The huge turn-out expected is indicative of the widespread interest created for the affair in response to the tireless efforts of the committee of 65 in charge of the dinner, Mr. Mazer stated, praising the leadership of Morris Gintzler, chairman of the dinner committee, D. Samuel Gottesman, Abraham Herman and William Salzman, co-chairmen, and Jacob Sincoff, treasurer.

Though demand for reservations in advance of the dinner has been brisk, an anticipated last minute rush for seats will be taken care of by special precautions adopted by the committee, he said.

The June 14 affair will highlight the campaign activities of the Paper, Paper Box and Allied Trades Division of the United Jewish Appeal which seeks funds to carry on the expanded relief programs of the three major Jewish agencies helping the refugees —the Joint Distribution Committee, the United Palestine Appeal, and the National Coordinating Committee.

As announced, the dinner will honor the business and philanthropic accomplishments of Mr. Gilman, whose leadership in many philanthropic causes has won him high regard, Mr. Mazer said.

"Our industry may pride itself in the manner it has supported the dinner arranged for one of the most compelling causes," he declared. "In this tragic hour, everyone must feel deeply concerned about social injustice, and eager to help the victims of man's inhumanity to man."

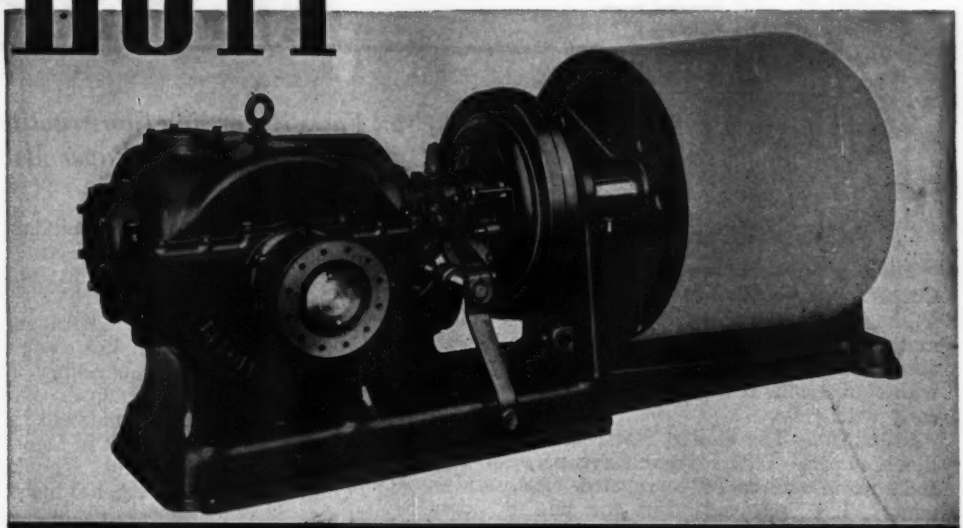
Multi-Action Vat

The merits of the Multi-Action Vat, for which a patent has been applied for, are described in a folder just issued by the Lagerloef Trading Company, Inc., 52 Vanderbilt avenue, New York. It is stated that the Multi-Action Vat enables the operator to more easily prepare pulps for the speeds and grades desired, because it is capable of adapting itself to a wider range of freenesses and consistencies. It gives the paper maker control over height of liquid on inlet and outlet sides of mold, the quantity of overflow liquid away from mold, height of head or suction between exterior and interior of mold, and velocity of liquid around mold circle. Economy is stated to be effected by enabling the paper machine to operate at higher speed, permitting less "pointage" with proper formation, thus causing less trouble that creates breaks and shutdowns, and providing the operator a unit establishing a control of varying conditions that formerly created difficulties.

Stixso Mineral Adhesive

Stixso adhesive silicate of soda is described in a bulletin issued by the Philadelphia Quartz Company, 121-129 South Third street, Philadelphia, Pa. When Stixso was first announced to the container industry, it was cited to produce stiff dry board that can be fed to the printers and slotters immediately, and to make highest quality boxes day in and day out. As the strength of the board is greatest when adhesion is complete, the thorough adhesion of Stixso, regardless of board materials, is stated to give better bonding. Leading container manufacturers of Stixso-made boxes report that compression has improved more than 10 per cent. Stixso is in daily use in plants using jute, straw, pine, chestnut, and kraft, in a wide range of finishes.

BELOIT



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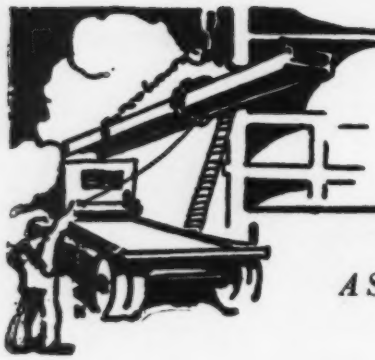

CONSTRUCTION NEWS

A Summary of Vital Facts Regarding Construction, Financing and Operation of Pulp and Paper Mills

General Construction News

Hudson Falls, N. Y.—The Union Bag and Paper Corporation, Woolworth Building, New York, N. Y., has plans under way for new addition to branch mill on John street, Hudson Falls, to be two-story, about 100 x 100 feet, reported to cost over $80,000, with equipment. It is proposed to begin erection at early date.

Knox, Pa.—The United States Corrugated Fibre Box Company, 1409 Roosevelt avenue, Indianapolis, Ind., manufacturer of corrugated boxes and containers, has approved plans for new addition to branch plant at Knox, consisting of a two-story unit, estimated to cost close to $50,000, including equipment. Award for steel frame superstructure has been let to the Pittsburgh Bridge & Iron Works, Union Bank Building, Pittsburgh, Pa., and work is scheduled to be placed under way at once. H. J. Lacy is president.

Madison, Wis.—The Celon Company, 2034 Pennsylvania avenue, manufacturer of cellulose bottle caps and allied cellulose specialties, has begun construction of new one-story addition to plant, to be 48 x 140 feet, reported to cost close to $30,000 with equipment. Capacity will be increased. General contract for erection has been awarded to George Nelson & Son, Shorewood Hills, Madison. Joseph C. Ford is president.

New York, N. Y.—The Fairdeal Paper Company, 2010 First avenue, Bronx, wrapping and other paper stocks, has leased space in building at 11 Canal place, Bronx, totaling about 51,000 square feet of floor space, and will occupy for new storage and distributing plant. Property will be taken over at once and equipment installed.

Bay City, Mich.—The Michigan Carton Company, East Fountain street, manufacturer of paper boxes and containers, has preliminary plans under way for new one-story addition to factory branch, storage and distributing plant at Bay City. It is reported to cost over $40,000, with equipment. Shreve, Anderson & Walker, Marquette Building, Detroit, Mich., are architects.

Lancaster, Pa.—The Armstrong Cork Company, Mary and Liberty streets, manufacturer of insulating products, cork board specialties, has asked bids on general contract for one-story addition to local plant. No estimate of cost has been announced. It is proposed to carry out work during the summer.

Piqua, Ohio—The Piqua Strawboard Division of the Queen City Paper Company, Akron, Ohio, manufacturer of pulp lined straw board and allied products, is considering early rebuilding of portion of storage and distributing building at mill at Tippecanoe City, near Piqua, recently damaged by fire, caused by lightning. Loss is reported to approximate $10,000.

Franklin, Va.—The Chesapeake-Camp Corporation, manufacturer of kraft paper products, has begun erection of new one-story addition to mill for increased capacity in pulp division, recently referred to in these columns, and will have unit ready for service at early date. It is reported to cost close to $40,000, with equipment. The Turner Construction Company, Norfolk, Va., has the general building contract.

Eden, Vt.—The Ruberoid Company, 500 Fifth avenue, New York, N. Y., manufacturer of roofing products, has adopted a full time production schedule at mill at Eden, with three eight-hour shifts, and will continue on this basis for an indefinite period.

Bronx, New York, N. Y.—The National Gypsum Company, 190 Delaware avenue, Buffalo, N. Y., manufacturer of wall board, insulating board and kindred products, has taken out a permit for new addition to branch plant at East River and 150th street, Bronx, consisting of a one-story unit, 118 x 453 feet, to be used in part for storage and distribution. It is estimated to cost close to $125,000. Erection will be placed under way at once. J. D. Anderson is company architect.

Mobile, Ala.—The Hollingsworth & Whitney Company, 140 Federal street, Boston, Mass., manufacturer of bond and other writing paper stocks, kraft and fiber papers, etc., is placing awards for equipment for its new mill at Mobile, for which general erection contract was let recently to the Rust Engineering Company, Clark Building, Pittsburgh, Pa., as previously noted in these columns. An order has been placed with the Blaw-Knox Company, Blawnox, Pittsburgh, for four pulp digesters of all-welded steel construction, with inside diameter of 11 feet and length of 47 feet. The vessels will be completely annealed and tested to a pressure of 300 pounds. Awards for other machinery will be made at early date, including main mill equipment. Work on the new kraft pulp and paper mill is being placed under way on waterfront site on Mobile River and Chickasabogue Creek. It will consist of several large production units and is estimated to cost close to $5,000,000, with equipment. Completion is scheduled in the spring of next year.

New York, N. Y.—The Ritz Paper Box Company, Inc., 303 Cherry street, manufacturer of paper boxes and containers, has a floor in the

building at 322 East Twenty-third street, and will occupy for plant. It is proposed to remove present plant to new location and increase operations.

Montreal, Que.—The Walker Paper Products, Ltd., 101 Murray street, has plans under way for a large storage and distributing terminal at its plant, consisting of a one-story building, with railroad sidings and motor truck handling facilities. It is reported to cost over $150,000, with equipment. Work will be placed under way at early date. C. R. Tetley, 630 Dorchester street, West, Montreal, is architect.

Melbourne, Australia—The Modern Printing Company, Pty., Ltd., Carlton, Victoria, manufacturer of paper boxes and containers, has concluded arrangements with Beau Monde (Australia), Ltd., Melbourne, Victoria, manufacturer of hosiery, for the purchase of its paper box and carton-manufacturing division, established about a year ago at a cost of close to $125,000, and equipped for large capacity. Purchasing company will continue operations at same location and in the future will furnish the paper box and container requirements of the Beau Monde company. Increased output is planned under the new ownership.

New Companies

New York, N. Y.—The Duchess Paperwares Corporation has been incorporated with capital of 100 shares of stock, no par value, to manufacture and deal in paper products of various kinds. New company is represented by Jerome A. Teller, 26 Court street, Brooklyn, N. Y., attorney.

St. Louis, Mo.—The Pioneer Paper Company has been incorporated with capital of $10,000, to deal in paper products of different kinds, including wrapping papers and other commercial stocks. New company is headed by John L. Bauman and Arthur F. C. Blase, 818 Oliver street, St. Louis.

Glen Falls, N. Y.—The Regent Paint & Wall Paper Corporation has been organized with capital of $10,000 to deal in wall papers, etc. New company will maintain storage and distributing plant at Glen Falls. It is represented by Abraham H. Geffner, 302 Broadway, New York, N. Y., attorney.

New York, N. Y.—The Falcon Display Company, Inc., has been chartered with capital of 200 shares of stock, no par value, to manufacture and deal in paper boxes and containers, and kindred paper goods. New company is represented by Irving T. Wolfson, 170 Broadway, New York, attorney.

Brooklyn, N. Y.—The Bedford Box Company, Inc., has been organized with capital of $20,000 to manufacture and deal in paper boxes and containers. New company is represented by Barsahy, Frankel & Rothstein, 2 Lafayette street, New York, attorneys.

Aid Letter Writing Campaign

Edgar P. Eaton, executive secretary of the Paper Stationery and Tablet Manufacturers Association states that manufacturers of stationery are participating in the 1939 National Letter Writing Week campaign, the dates for which are October 1 to 7. They are supplying retailers with 70,000 posters and are furnishing additional dealer material.

BUYS WATERWAY PRODUCTS PLANT

(Continued from page 11)

given a special sort of emphasis with the appearance of two guests from England. The two were guests of Mr. Alex Shennon of the International Tag and Sales Book Company, Mr. Earnest Rigg and Mr. Vernon Clark of Fisher, Clark & Company, Boston, Lincs, England. The firm represented by Mr. Rigg and Mr. Clark are converters of tags, labels and tickets. Both gave interesting talks at the informal dinner program which crowned the day's golfing activities and both were awarded special prizes by Ben Babbitt, genial toastmaster of the occasion. The two English visitors stressed the cordial relationships existing between England, Canada and the United States, pointed out many reasons why this relationship should continue and expressed genuine pleasure over the cordial treatment they were receiving in this country.

Fifty-one attended the outing at Sunset Ridge on May 25 with 46 participating in the golf events. Prize winners, as announced by George Crafts, golf chairman, are as follows: low gross, W. J. Tilden, Mead Sales Co.; blind bogey, Ham Vose, Berkshire Paper Company; low net, 17 and under, Courtney Reeves, Allied Paper Mills; low net, 18 and over, C. Jones, Seaman Paper Company; second low net, 18 and over, B. M. Lewis, Nicolette Paper Company; third low net, 18 and over, W. W. Baker, Messinger Paper Company; low net, first nine holes, P. H. Barkley, C. H. Barkley & Company; low net, second nine, George Brown, Kennedy Car Liner; low putts first nine, Herb Montgomery, Berkshire Paper Company; low putts second nine, W. J. Tilden. The high gross foursome consisted of J. Loughlin, Messenger Paper Company; Bill Jones, Riverside Paper Company, Hans Christiansen, Allman Christiansen of Milwaukee; Herb Montgomery. Low net foursome was composed of W. W. Baker, Sr., Messenger Paper Company; Allen Mueller, Messenger Paper Company and C. N. Egan and Bill Tilden of Mead Sales. Low putt foursome consisted of Frank Prentiss, Hollingsworth & Whitney; P. H. Barkley; Ray George, Tomahawk Kraft Paper Company, and E. J. Rolain of Mosinee Paper Mills.

Takes Over Delaware Paper Mills

WILMINGTON, Del., June 5, 1939—The Container Corporation of America has taken over the Delaware Paper Mills, Inc., which for the past five years operated the old Jessup and Moore paper mills along the Brandywine. Officials said the 150 employes of the mills would not be affected.

A survey of the local property will be made by John Brossard, vice-president in charge of production of the Container Corporation, to determine how it can be best used in conjunction with the corporation's other eastern properties.

Mr. Brossard said the addition of a corrugated box plant here is under consideration.

The local plant will also be used as a terminal for the storing of stock for the convenience of customers in this vicinity.

The Jessup & Moore plant had been closed for a number of years when it was purchased by the Delaware Paper Mills, Inc., in 1934. It has been renovated and in operation since that time.

PAPER TRADE JOURNAL

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Henry J. Berger
EDITOR

Ronald G. Macdonald
Editor Technical Section

Lynne M. Lamm
Washington Correspondent

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COMING EVENTS IN PAPER INDUSTRY

TECHNICAL ASSOCIATION OF THE PULP AND PAPER INDUSTRY, Fall Meeting, Syracuse Hotel, Syracuse, N. Y., September 12-14.

NEW ENGLAND SECTION. Technical Association of the Pulp and Paper Industry—Third Friday of each month at the Roger Smith Hotel, Holyoke, Mass.

DELAWARE VALLEY SECTION. Technical Association of the Pulp and Paper Industry—Second Friday of each month at the Engineers Club, Philadelphia, Pa.

LAKE STATES SECTION. Technical Association of the Pulp and Paper Industry—Second Tuesday of each month at the Conway Hotel, Appleton, Wis.

KALAMAZOO VALLEY SECTION. Technical Association of the Pulp and Paper Industry—First Thursday of each month at the Park, American Hotel, Kalamazoo, Mich.

AMERICAN PULP AND PAPER MILL SUPERINTENDENTS ASSOCIATION, Annual Convention, Wardman Park Hotel, Washington, D. C. June 13-15.

NATIONAL SAFETY COUNCIL, PAPER AND PULP SECTION, Annual Meeting, Atlantic City, N. J. October 16-20.

PRICES AND PROSPERITY

Prices are directly related to prosperity and while an important element the significance of any price level, be it 1926 or 1939, so far as recovery or permanent prosperity is concerned, will be found in considering prices with the national income. That is to say, the important point in national economy is the equitable relationship between prices of commodities or wage income produced, and the prices of commodities which must be purchased. It is, therefore, the relationship of individual prices rather than the general price level which is important in promoting recovery and national prosperity.

In considering briefly commodity prices in relation to business activity, *The Guranty Survey,* published by The Guaranty Trust Company of New York, states that, "Thus far, the results of attempts to raise farm prices, as well as other prices, suggest that the cost of purchasing power is being put before the horse of recovery. One of the policies followed most persistently by the United States Government in its recovery program has been that of attempting to raise prices, particularly farm prices. The steps taken in the effort to achieve this aim have been of two kinds—financial measures designed to raise prices in general and control devices intended to raise prices of individual commodities. The original Agricultural Adjustment Act, passed in 1933, gave the President broad powers of an inflationary nature, including the authority to devalue the dollar and to issue additional paper currency. The "easy money" policy of the Federal Reserve system and the borrowing-spending program of the Government also have inflationary implications, although they were not adopted for the sole purpose of raising prices."

According to *The Survey* price emphasis has been misplaced. "Both the general price level and the statistical position of farm products, to say nothing of domestic and foreign trade as a whole, might be more satisfactory today if attempts at price manipulation had been avoided entirely and attention devoted to the single problem of providing a favorable environment for normal business recovery. Higher commodity prices were admittedly desirable, since these prices at their depression levels were out of balance with the debts and other fixed charges of individuals and business concerns. Similarly, farm prices in 1932 and 1933 were unquestionably far too low in relation to other prices. But the efforts to correct these maladjustments by price manipulation have failed to produce the desired business recovery and have been instrumental in causing the various complications and difficulties that have led to such awkward and uneconomic expedients as barter.

"After several years of experimentation with banking and monetary devices under the broad powers conferred upon it by Congress, the Board of Governors of the Federal Reserve System recently published a statement setting forth its conclusions regarding price regulation by monetary action. Its first conclusion is that 'prices cannot be controlled by changes in the amount and cost of money'. The second is that control of the amount of money by central banking authorities 'is not complete and cannot be made complete.' The board accordingly opposes any legislation based on the assumption that the Federl Reserve system or any other agency of the Government 'can control the volume of money and credit and thereby raise the price level to a prescribed point and maintain it there.' "

In commenting on prices and prosperity *The Survey* states in part: "Even more important in their bearing on the relation of prices to recovery are the other two conclusions reached by the board, namely, that 'a steady average of prices does not necessarily result in lasting prosperity. To a business concern, the vital question is the relation between selling prices and costs: and the selling prices of one concern are not the costs of another. It is not the general price level, but the relations among individual prices, that are important from the standpoint of recovery and prosperity. Efforts to promote business expansion in the United States have been handicapped by an excessive preoccupation with the establishment and maintenance of price levels. Measures designed to raise prices to pre-determined points by artificial means have interfered with the national readjustment by which markets might have been restored and the volume of activity increased. This point of view, fortunately, is gaining some recognition. In-

creasing emphasis has been placed recently on the need of lower prices in certain fields as a stimulant to demand. But arbitrary price reductions in some directions are no more feasible than arbitrary price advances in others. When costs have been raised and 'frozen' at certain levels, by legislation or otherwise, it is vain to expect that the selling prices dependent on those costs can be reduced or that markets for the finished products can be restored."

The paper industry may be cited among the major industries as a prominent example of "rising costs frozen at certain levels", under which deterrents fair profits cannot be made. With production today running in one division of the industry about equal to the all-time 1937 level, current prices are too low to yield anything like fair profits. Although some companies reported their earnings in the first quarter of this year than in the first quarter of last year, the average earnings of twenty paper and pulp mills showed a decline of nearly 15 per cent in the first three months of this year compared with a like period last year.

Revised Production Figures

R. S. Kellogg, secretary of the News Print Service Bureau has purchased the following corrected report giving Germany a total news print paper production of 512,000 tons in 1938 instead of the former report of 467,000 tons, making a world total last year of 7,555,000 tons, so far as can now be ascertained. No information has yet been secured upon the output in Austria and Czechoslovakia, due to well-known reasons.

Instead of the statement released on April 14 the following figures for 1938 world news print production should be used—all in thousand short tons:

Country	1938
Canada	2,625
Great Britain	954
United States	820
Germany	512
Finland	457
Japan	429
France	347
Sweden	278
Newfoundland	268
Russia	234
Norway	188
Netherlands	105
Italy	77
Austria	55(?)
Czechoslovakia	48(?)
Switzerland	46
Belgium	39
Poland	37
Chile	12
Latvia	9
Estonia	6
Hungary	5
Bulgaria	2
Lithuania	2
Spain	(?)
Mexico	...
Denmark	...
Total	7,555

Cuba's Pulp Imports

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., June 5, 1939—Statistics just obtained from the Cuban Treasury Department show imports of wood pulp into Cuba for the calendar year 1938 amounted to 9,390 metric tons valued at $324,768. Imports during the year 1937 were reported at 9,695 tons valued at $355,810.

Production Ratio Report

These statistics are based upon paper production reports to the American Paper and Pulp Association.

COMPARATIVE MONTHLY SUMMARIES[1]

Months	1939	1938	1937	1936	1935	1934
January	77.5%	63.9%	90.3%	76.1%	65.8%	.....
February	81.7%	68.7%	90.1%	77.9%	70.0%	.....
March	84.1%	69.6%	90.3%	76.0%	70.5%	.....
April	82.9%	68.3%	92.1%	82.3%	70.0%	.....
May	.....	69.0%	90.6%	81.6%	69.4%	.....
June	.....	66.0%	87.3%	80.7%	72.3%	.....
July	.....	72.0%	81.8%	77.3%	64.9%	.....
August	.....	77.2%	82.9%	81.5%	70.9%	.....
September	.....	76.3%	78.6%	80.5%	71.9%	58.2%
October	.....	82.5%	73.5%	87.6%	75.6%	64.7%
November	.....	79.6%	61.9%	88.0%	75.3%	61.7%
December	.....	74.4%	54.5%	85.9%	71.2%	59.6%
Year Average	.....	72.3%	80.6%	81.3%	70.5%	.....
First 21 weeks	81.6%	67.9%	90.7%	78.8%	69.0%	.....

COMPARATIVE WEEKLY SUMMARIES[1]

CURRENT WEEKS, 1939		CORRESPONDING WEEKS, 1938	
April 22	82.5%	April 23	67.4%
April 29	84.3%	April 30	70.4%
May 6	83.6%	May 7	67.1%
May 13	81.9%	May 14	67.7%
May 20	81.4%	May 21	69.7%
May 27	76.8%	May 28	71.4%

The following statistics show the number of mills reporting by ratio groups:

	Number of Mills Reporting—Current Weeks					
Ratio Limits	Apr. 22, 1939	Apr. 29, 1939	May 6, 1939	May 13, 1939	May 20, 1939	May 27, 1939
0% to 50%	59	59	60	60	54	35
51% to 100%	246	247	243	237	227	145
Total Mills Reporting	305	306	303	297	281	180

PAPERBOARD OPERATING RATIOS

Per cents of operation based on "Inch-Hours" reported to the National Paperboard Association.

Year	Jan.	Feb.	Mar.	Apr.	May	June	July
1935	62%	68%	68%	63%	61%	66%	62%
1936	62%	67%	67%	70%	69%	70%	69%
1937	80%	86%	86%	88%	85%	77%	66%
1938	54%	60%	61%	57%	58%	56%	57%
1939	60%	67%	71%	69%	....	....	....

Year	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1935	67%	71%	77%	71%	61%	66%
1936	75%	78%	82%	80%	74%	72%
1937	74%	69%	65%	55%	45%	73%
1938	66%	66%	70%	65%	59%	61%

Week end. Apr. 22, 1939—69%
Week end. Apr. 29, 1939—68%
Week end. May 6, 1939—68%
Week end. May 13, 1939—65%
Week end. May 20, 1939—65%
Week end. May 27, 1939—66%

[1] Production-capacity ratios are based upon six-day capacity ratings which are adjusted periodically to correspond with the ratings reported by individual companies. Ratios are subject to revision until all reports are received.

Tissue Practice Revised

WASHINGTON, D. C., June 7, 1939—The current revision of Simplified Practice Recommendation R46, Tissue Paper, has been accorded the required degree of acceptance by the industry, and is approved for promulgation as of June 15, 1939, according to an announcement by the Division of Simplified Practice, Bureau of Standards. The revised recommendation will be identified as Simplified Practice Recommendation R46-39.

This revision, covering wrapping tissue, toilet tissue, and paper napkins, is based on data submitted by the Tissue Association, and reflects current practice in the industry. It contains more detailed information than the original program, which became effective in 1926. As now revised, the recommendation includes data on designation or grade, colors, fiber content, sheet sizes, basis weight, count, wrapping, marking, put-ups and packing. Provision is also made for labeling wrapping tissue, a reproduction of the label issued by the Tissue Association for this purpose being shown.

CHEMICALS

FOR PAPER BOARD OR FINE TISSUE

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Section of the
Technical Association of the Pulp and Paper Industry

Edited by Ronald G. Macdonald, Secretary

Fiber Composition of Paper*

This method covers the identification of the types of fibers present in a sample of paper and their quantitative estimation. For accurate results considerable training and experience are necessary. The analyst should make frequent use of standard papers of known composition or of authentic fiber samples and should become thoroughly familiar with the characteristics of the different fibers and their behavior when treated with the various stains. As an aid to this end the appendix should be frequently consulted.

Equipment

1. *Microscope:* A compound microscope equipped with a mechanical stage, Abbé condenser, eyepiece and achromatic objective. A magnification of 100 diameters is recommended. This is obtained by using a 16-mm. objective and a 10-X Huygenian eyepiece. If the microscope has an adjustable draw tube, a 160-mm. tube length is used; and if an apochromatic objective is employed, it is necessary to use a compensating eyepiece and an achromatic condenser.

2. *Counting Eyepiece:* The eyepiece shall be equipped with a suitable reference point (cross hairs, pointer, or dot) for counting the fibers passing under it. Such can be supplied by the manufacturers of optical equipment or may be obtained by one of the ways described in Appendix (1).

3. *Dropper:* A glass tube 6 mm. in internal diameter and about 10 cm. long, fitted at one end with a rubber bulb and having the other end carefully smoothed but not constricted. The tube shall be graduated at the lower end so as to deliver 0.5 cc.

4. *Slides and Cover Glasses:* Slides and cover glasses shall be kept in 50 percent alcohol, or washed with it before use. The slides shall be 1 in. x 3 in., of colorless glass. The cover glasses shall be 1 in. square (No. 2).

5. *Hot Plate:* This should have a solid metal top with an absolutely level surface and be capable of heating to 50-60 deg. C. The top of the hot plate may be painted with a dull black paint, well baked on, and then marked with suitable lines to correspond with the lines on the ends of the slides. This is for convenience in making up samples.

6. *Dissecting Needles.*

7. *Aluminum Soap Solution.*

(a) To 600 cc. of distilled water add 15 grams of pure white soap shavings (Ivory Soap is satisfactory) and stir until completely dissolved; then add 10 grams of pure aluminum sulphate, $Al_2(SO_4)_3.18\ H_2O$, and stir until the precipitate forms a wax-like mass of Al-stearate which may be lifted out with a stirring rod. Place the precipitate in a desiccator for 48 hours or more. Store in a well stoppered bottle for use as needed.

(b) To 50 cc. of benzene in a glass-stoppered bottle add 0.7 gram of the Al-stearate and shake well daily until completely dissolved. This usually requires about 10 days.

If, after standing for several weeks, the mixture should appear to have lost some of its water-repelling capacity, a small piece of Al-stearate dropped into the solution will correct this condition within a few hours.

Test Specimen

The specimen for test shall consist, when possible, of pieces having a total area of 25 sq. cm. (4 sq. in.) cut from different portions of the test sample, so as to be representative of it. If sufficient specimen is not available, an area of 3 sq. cm. (½ sq. in.) will be recognized for quantitative analysis and 0.9 sq. cm. (⅛ sq. in.) for fiber identification.

Preparation for Examination

Disintegration: (a) Tear the sample into small pieces and place in a small beaker. It is advisable to obtain the approximate weight in order to calculate the proper dilution. Cover with distilled water, bring to a boil on a hot plate, decant the water, roll the individual pieces into small pellets between the fingers, and place in a 500-cc. Erlenmeyer flask. Add a little water, and shake vigorously until the water is thoroughly absorbed by the paper. Add a little more water, shake well, again add some water and shake, and continue in this way until the paper has been thoroughly disintegrated. Dilute the suspension by discarding part of it and adding water to the remainder until the suspension has a consistency of about 0.05 per cent. Then pour into test tubes.

Note: With certain papers, chiefly those which are heavily loaded, if much pressure is used in forming the pellets, the wood fibers will be broken down in such a way as to seriously affect the counting. In such cases the rolling should be done very gently or omitted.

(b) If the degree of beating and the fiber length are of no interest the disintegration may be done in an electric soda-fountain mixer.

(c) In cases where the fibers cannot be disintegrated by first boiling in water, cover the sample with 1 per cent NaOH solution, bring to a boil on a hot plate, decant the alkaline solution, wash twice with distilled water, cover with $N/20$ HCl, or stronger if necessary for carbonate-filled or starch sized papers, let stand several minutes, decant the acid, wash several times with water, and then disintegrate as under *(a)*.

* Revised tentative standard T401m-39 Technical Association of the Pulp and Paper Industry. (Official standard, July, 1926, revised, Jan., 1930, corrected, Sept. 15, 1936).

Note: The NaOH treatment must not be used with roofing paper or other papers containing wool fibers.

(d) Specially treated or colored papers may require some pretreatment. See Appendix (2).

Preparing Slides: Keep the microscope slides and cover glasses in 50 per cent alcohol. After the slides have been dried and polished, draw lines on them 1 inch from each end in the following manner: Arrange six slides or less so that the edges are in contact. Place a 6-inch wooden rule (1 inch wide and having a metal ferrule) on the slides so that the rear edge of the rule is even with their ends. Dip a clean steel pen in an ordinary pen holder into the Al-soap solution, and let the excess flow off by touching the point to the edge of the bottle. Draw a line on the slides along the metal edge of the ruler. Repeat the operation on the opposite ends of the slides. This gives a thin line of Al-stearate across each slide 1 inch from each end, and these lines will keep the fiber suspension within the area of 1 sq.in. at each end of the slide. It is advisable to wipe the pen point clean after each set of markings. Remove dust and lint from the slides with a small camel's hair brush; then place the slides on the hot plate at about 60 deg. C. The hot plate must be *level.*

Thoroughly mix the test-tube suspension of the sample, insert the dropper to the middle of the suspension and withdraw a portion of the mixture. Place 0.5 cc. of the suspension immediately on each end of the slide. (The test tube must be shaken and sample withdrawn for each end of the slide.) Evaporate a portion of the water, then carefully tap the suspension with a dissecting needle to distribute the fibers evenly inside the 1-inch-square areas on the end of each slide. Leave the slides on the hot plate until completely dried. They are then ready for staining as described under the various stains.

Note: Care must be taken that the unstained fibers on the slide are not touched by the analyst's fingers. The slide should be allowed to cool before adding the stain, otherwise confusing colors may be obtained.

Procedure

Examine the prepared slides microscopically, using a magnification of about 100 diameters. For a quantitative estimation, place the stained slide on the mechanical stage of the microscope and count the different kinds of fibers across the slide, beginning 2.5 mm. from one long edge and making five trips across one end of the slide along lines spaced approximately 5 mm. apart. The distribution of fibers on the slide shall be such that 5 trips across the slide at 5-mm. intervals will include between 200 and 300 fibers. Repeat this on the sample on the other end of the slide. If these two results agree within 5 per cent, no further counts shall be made; otherwise another count shall be made on one end of a second slide and the three results averaged.

As each fiber passes under the reference point in the eyepiece, count it as one regardless of its size. If aggregations of fibers, such as occur in groundwood, are encountered, the number of single fibers in the aggregation shall be estimated and counted as if the fibers were separated completely.

Note: The differentiation of fibers by the use of stains should be supplemented by consideration of their morphology. This is discussed in the appendix.

Preparation of Stains

Stains using $ZnCl_2$ or iodine should always be kept from exposure to air and light.

Zinc chloride is marketed in two forms, fused sticks and crystals. The former, if not fresh, may contain an appreciable amount of insoluble Zn-oxychloride. It is widely used, however, for making Herzberg's stain and is specified by the A.S.T.M. *(1).* A convenient way to use the $ZnCl_2$ sticks is to purchase in 50-gram bottles and use a fresh bottle for each preparation.

It is absolutely essential to have a satisfactory stain if the results are to be of value. To test out a stain, make up a mixture of about equal parts of bleached soda pulp, bleached sulphite, rag filter paper, and groundwood. Prepare a microscope slide from this mixture and stain with the stain to be tested. For the Herzberg stain, if the stain is correct, the soda pulp should show a dark blue color; the sulphite pulp, a light blue; the rag fibers, a red or wine-red color; and the groundwood, a bright yellow.

Note:—For routine analysis it is unwise to "doctor" the stain; if it is not correct, one should trace the cause of the poor stain and eliminate it. For those, however, who care to "doctor" the Herzberg stain, the following directions are given *(36):* If the blue is not clear, but tends toward violet, too much iodine is present and more water or $ZnCl_2$ should be added. More $ZnCl_2$ strengthens the red and yellow colors, and water serves to weaken the predominant color.

In cases where it is necessary to examine all grades of papers, some analysts deem it advisable to keep several Herzberg stains on hand. They consider that a stain which gives the best color on groundwood and bleached sulphite seldom gives the optimum color on mixtures of rag, bleached sulphite and soda. In such a case one Herzberg stain may be made up so that it will give a *bright lemon yellow* on a known sample of groundwood pulp and a slightly *greenish blue* on unbleached sulphite. For the mixture of rag, bleached sulphite and soda, so adjust a second stain that the rag shows a clear *wine-red,* the sulphite a *blue,* and the soda fibers a *dark blue.*

In testing out a stain, always have on hand authentic samples of pulp for making up mixtures. Other stains than the Herzberg should also be checked before use.

Stock solutions of stains will not keep indefinitely. It is wise, especially for important analyses, to run a blank to be sure that the stains are working properly. The deterioration of the Herzberg stain under various conditions has been investigated by Minnear and Withrow *(30).*

Standard Stains

The following three stains are considered standard. Additional stains for more special work are described in the appendix. The standard stains shall be prepared and used as follows:

1. *Herzberg Stain (20)*

Prepare the following solutions:

A. An aqueous solution of *C.P.* zinc chloride (fused sticks in 50-gram, unbroken, sealed bottles) saturated at 20 deg. C.

B. 0.25 gram of C.P. iodine and 5.25 grams of C.P. potassium iodine dissolved in 12.5 cc. of distilled water.

Mix 25 cc. of solution *A,* measured at 20 deg. C., with solution *B.* Pour into a narrow cylinder and let stand until clear (12-24 hours). Decant the supernatant liquid into an amber-colored glass-stoppered bottle and add a small piece of iodine to the solution. Avoid undue exposure to light and air.

For staining, apply 3 or 4 drops of the stain to the dried fibers, cover the whole with a cover glass in such a manner as to avoid air bubbles, let stand for 1 or 2 minutes and drain off the surplus by tipping the slide edgewise on a blotter.

The following colors are developed by this stain:

Red — Linen, cotton, bleached manila hemp (abacà).

Blue — Chemically prepared fibers low in lignin, from wood, straw, and esparto.

Yellow — Fibers high in lignin, such as ground-

wood, (unbleached) jute and unbleached manila hemp (abacà).

2. *Lofton-Merritt Stain (27)*

This stain shall be limited to differentiation between coniferous (softwood) unbleached sulphite and coniferous (softwood) untreated, unbleached kraft, and must not be used to distinguish bleached from unbleached pulps. It is of questionable value in distinguishing between unbleached sulphite and unbleached *refined* kraft; also between softwood spruce and kraft *(20) (26 a)*.

Prepare the following solutions:

A. 2 grams of malachite green in 100 cc. of water.
B. 1 gram of basic fuchsin in 100 cc. of water.

Mix these in the proportion of 1 part of *A* to 2 parts of *B*. Add a few drops of the compound stain to the fibers and let stand 2 minutes. Remove excess stain by means of a hard filter paper and add a few drops of 0.1 per cent HCl. After about 30 seconds remove the excess acid. Finally add a few drops of water and remove the excess.

As dyes from different sources vary, it is necessary to test them by staining known fibers. Unbleached sulphate fibers are stained blue or blue-green and unbleached sulphite fibers purple or lavender. If any purple fibers appear in unbleached sulphate fibers, this indicates there is too much fuchsin present and more malachite green solution must be added. The opposite is indicated if some unbleached sulphite fibers develop a green or blue color.

3. *Modified Bright Stain (26)*

This stain shall be used *only* to show the presence of groundwood and unbleached pulps. Percentages of unbleached or groundwood pulp found by this method may be lower than the actual amount present, due to the fact that some well-cooked unbleached pulp may fail to give a blue color. The solutions required are:

A. 2.7 grams of ferric chloride, $FeCl_3.6H_2O$, per 100 cc. of distilled water.
B. 3.29 grams of potassium ferricyanide, $K_3Fe(CN)_6$, per 100 cc. of distilled water.
C. 0.5 gram of benzopurpurin 4B crude in 100 cc. of 50 per cent ethyl alcohol. The dye used shall be DuPont Purpurin 4B Concentrated, or its equivalent. The solution is warmed until the dye is completely dissolved. (Some of the dye will precipitate on cooling.)

Note:—Some experienced observers recommend mixing equal parts of solutions *A* and *B* before application on the slide.

Filter solutions *A* and *B* and keep in separate bottles. These solutions should be renewed frequently. Solution *C* may be used indefinitely. When the solution becomes cloudy, warm until it becomes clear again.

Apply 3 drops each of solutions *A* and *B* to the fibers and let stand 1 minute. Remove the excess stain by means of blotting or filter paper, add a few drops of solution *C*, and let stand 2 minutes. Finally remove water, using a glass cover.

Any blue coloration of fibers shows the presence of groundwood and/or unbleached pulps. Bleached fibers or fibers practically free from ligno-cellulose stain red.

TABLE I—WEIGHT FACTORS FOR DIFFERENT TYPES OF FIBERS

Ground Wood	1.3
Rag	1.0
Chemical Coniferous Wood	0.9
Chemical Deciduous Wood	0.6

Note:—It is recognized that the previous treatment of the fibers may considerably effect the weight factor. It is necessary, however, to use factors to compensate the actual microscopical counts for differences in the weight and volume of different types of fibers. Factors for groundwood and rag have been sufficiently well established to be considered standard. The other factors are accepted tentatively pending further investigation.

Calculation of Results

Multiply the number of each kind of fiber counted by its proper factor as given in Table I to obtain the weighted count. Add together the weighted counts of each kind of fiber and calculate each to a percentage of the total.

Report

The proportions of the various fibers found shall be reported in terms of percentages by weight of the total fiber composition to the nearest multiple of 5. When any fiber is found present in amount less than 2½ per cent, it shall be reported as "Trace."

In reporting results by the Herzberg stain the following nomenclature shall be used:

Rag (Cotton, linen, hemp)	Esparto
Coniferous Chemical Wood	Jute or Manila
Deciduous Chemical Wood	Straw
Mechanical Wood (groundwood)	Japanese Fiber

When other stains than the Herzberg are used, appropriate qualifying terms may be applied, such as bleached, unbleached, sulphate, sulphite, etc.

APPENDIX

Additional Information on Fiber Analysis[1]

(1) EQUIPMENT

The requirement for a microscope to be used only for routine fiber analysis is that it be of the compound type with a magnification of approximately 100 diameters. This may be obtained, with the draw tube at 160 mm., by using a 10-X eyepiece and a 16 mm. objective. Some manufacturers do not use this nomenclature, so that the manufacturer's instruction book should be consulted. Some operators prefer a magnification of about 75 diameters[2], others about 125. The best results are obtained between these limits.

A mechanical stage greatly facilitates the making of fiber analyses. Higher magnifications and such accessories as a condenser, nicol prisms, dark field illuminator, etc., often facilitate the identification of fibers. The square or rectangular stationary-stage type of microscope is probably the one most commonly used.

For best results for microscopical work a clear north light is preferable. Where there is a large amount of routine testing to be done, however, it is advisable to have a more constant source of light. There are various types of lamps available, but good results can be obtained with a common 50-watt lamp in conjunction with a blue "daylight" filter. It is to be noted that the color of the stained fibers on the slide will be somewhat different for the two kinds of illumination. In either case the light must be properly directed and focused by means of the mirror and condenser on the microscope.

[1] Much of the material in the appendix has been taken from an article by Calkin *(5)*.

[2] Kraus (private communication) states: "I use in routine work 75 diameters, which has the following advantages: The stained fibers are quite easily differentiated at this magnification; the color of the stain is more pronounced and a larger number of fibers can be counted in the same length of time. It is occasionally, but not often necessary, to rotate the nosepiece of the 8-millimeter objective".

The reference point in the counting eyepiece may be obtained in one of the following ways:

(a) A pointer in the eyepiece: Remove the bottom lens of the eyepiece and cement a rayon filament, approximately 0.03 mm. in diameter, at each end to the diaphragm with Canada balsam. After the balsam has dried, clip the thread at the center and remove half of it.

(b) Cross-hair disk: It is possible to construct a satisfactory cross-line disk by the use of two silk fibers, approximately 0.01 mm. in diameter, obtained by untwisting silk thread. Draw the fibers across the center of a round cover glass 18 mm. in diameter at right angles to each other, cement them to the edges of the glass with Canada balsam or other adhesive and cut off the protruding ends. Then place the cover glass, with the fibers on the under side, on the diaphragm of the eyepiece of the microscope and cement in this position with Canada balsam.

(c) Cross-hair eyepiece: This type of eyepiece is carried by manufacturers. It may be made by the same method as *(a)* by using 0.01-mm. rayon filament and cementing two threads intersecting at the center at right angles.

(d) Dot: Made by placing a black ink dot 0.5 mm. in diameter at the center of a round cover glass and inserting it in the eyepiece.

(e) Graticule or cross-line disk: This is carried in stock by many manufacturers of optical equipment. It is a round glass disk which fits in the standard microscope eyepiece and has two lines at right angles to each other engraved on one side. With it is usually supplied a simple spring ring to hold it against the diaphragm of the eyepiece.

(2) Pre-treatment of Special Papers

The preparation and disintegration of papers containing tar, asphalt, rubber, viscose, etc., parchment papers and highly colored papers often presents difficulties. No standard methods can be given but the following are suggested as guides.

(a) Tar- and Asphalt-treated Papers.—Treat with heavy coal-tar oil for 1 hour on a steam bath and press between blotters; then treat with medium heavy coal-tar oil and again press between blotters. Finally extract with benzene until the solvent comes through clear. No NaOH solution should be used with these papers as they usually contain wool fibers.

(b) Rubber-treated Papers.—Soak in chloroform for 24 hours, extract with anise oil and wash with a benzene-alcohol mixture. In the case of certain artificial leathers, another form of rubberized paper, the large amount of rubber present may be removed by soaking in oil of turpentine from 1 day to 1 week, depending upon the thickness.

(c) Parchment Papers.—Bartsch *(2)* has done considerable work on the disintegration of parchment papers. The following method is suggested:

Tear the parchmentized paper into pieces about 2 by 5 cm. and place in a 250-cc. beaker. Add about 50 cc. of 1:1 H_2SO_4 (at 50-60 deg. C.) and stir. Let the acid stay on the paper until it is disintegrated into individual fibers and quite small pieces of paper, which requires 2-5 minutes. If the treatment is not sufficiently drastic, the paper will not disintegrate, and vice versa. Stir quickly and pour the contents of the beaker into about 1 liter of water in a 2-liter beaker, then strain the suspension and wash until acid-free. Roll small pellets between the fingers, place in a flask, shake, and dilute for test tubes as desired. In general, this disintegration does not interfere with the Lofton-Merritt stain for distinguishing unbleached sulphite and sulphate. With Herzberg's stain, sulphite fibers appear reddish; also redder than usual with Sutermeister's stain.

Bartsch *(20)* has given another method for the disintegration of parchment paper which gives a fairly good differentiation with the Herzberg stain. Wisbar *(20)* has devised a special stain for use with disintegrated parchment paper.

(d) Highly-colored Papers.—The dyes may be removed from highly colored papers by one or more of the following types of treatment:

1. By Oxidation: Nitric acid, chloride of lime.
2. By Solution: Alcohol, NH_4OH, HCl, acetic acid.
3. By Reduction: Hydrosulphite, stannic chloride, HCl with metallic Zn.

All of these must, of course, be used with judgement and some knowledge of dye characteristics.

(e) Other Papers.—Directions for disintegrating carbon paper are given by Carson *(9)*.

Shaffer *(32)* reports that pretreating with alkali may be disadvantageous in certain cases for subsequent staining.

(3) Special Stains

1. *Modified Sutermeister Stain ("A" Stain) (16)*

Prepare a solution of 1.36 sp. gr. at 28 deg. C. by adding about 100 grams of C. P. calcium chloride crystals, $CaCl_2.6H_2O$, to 150 cc. of distilled water. To 45 cc. of this solution add 5 cc. of standard iodine solution, made by adding 0.9 gram of dry potassium iodide and 0.65 gram of dry iodine to 50 cc. of distilled water. Mix well, pour into a dark bottle, add a leaf of crystal iodine, and keep in the dark when not in use. The stain is used similarly to the Herzberg stain.

The colors produced by this stain are as follows:

Red or brownish red	Cotton, linen, hemp, ramie
Dark blue	Bleached, deciduous soda
Bluish or reddish violet	Other chemical wood pulps, except raw unbleached
Greenish yellow	Jute, manila, and raw unbleached chemical wood pulps
Yellow	Groundwood

2. *Selleger Stain*

Although not a standard stain, this stain finds considerable use, particularly for papers which contain soda pulp, esparto, or straw. A modified Selleger stain, which will retain its strength for 2 or 3 months, may be made by either of the following methods *(14)*:

(a) Dissolve 100 grams of calcium nitrate, $Ca(NO_3)_2$, in 50 cc. of water. Add 3 cc. of a solution made by dissolving 8 grams of potassium iodide, KI, in 90 cc. of water. Finally add 1 gram of iodine and let stand for 1 week. The stain is then ready for use.

(b) Dissolve 0.267 gram of KI in 53 cc. of water, add 1 gram of iodine, and let stand for 2 weeks, shaking each day so as to saturate the solution with iodine. Then dissolve in this solution 100 grams of $Ca(NO_3)_2$ and the stain is ready for use. (By saturating with iodine a solution containing 1 gram of KI to each 198 cc. of water, a saturated stock solution may be made to which it is necessary to add only $Ca(NO_3)_2$ in the proportion of 100 grams to 53 cc. of the stock solution.)

The colors produced with the stain on the various fibers are as follows:

Light Rose	Bleached coniferous wood.
Clear Yellow	Unbleached coniferous wood.
Violet Blue	Poplar and birch, straw.
Blue	Esparto and cooked straw.
Wine Red	Manila and hemp.
Rose-brownish	Linen and cotton.
Deep Yellow	Ground wood, jute and uncooked straw.

The stain is used similarly to the Herzberg stain.

3. *The "C" Stain*

The "C" stain as developed by Graff *(16)* *(35a)* is useful where fine distinctions and unusual differentiations are required and has been found particularly valuable in distinguishing types of chemical wood pulps, including specially purified fibers such as the alpha pulps. It has been recommended by the Paper Testing Committee for consideration for inclusion among the recognized special stains of the standard method.

In using the "C" stain especial care and precision are necessary in preparation and application and the analyst must be thoroughly familiar with its behavior on different types of fiber. As slight color differences and gradations in the stained fibers are important, it is necessary to have authentic samples of pulps and papers of known composition for comparison and it is advisable to have access to Ridgway's Color Charts or their equivalent. It is particularly essential that the condenser of the microscope be properly centered for axial transmitted light; that the condenser diaphragm have the proper opening, about two-thirds of the diameter of the back lens of the objective; and that, so far as possible, clear northern sky be used for illumination. When correctly used this stain gives the best differentiations now obtainable for the types of fibers listed in Table II.

TABLE II.
TYPES OF FIBERS DIFFERENTIATED BY "C" STAIN

1. Rag 2. Jute and Manila	Bleached Unbleached	Sulphite	Unbleached	Raw * Medium * Well Cooked *	
			Bleached	Ordinary * Prechlorinated * Alkaline *	
3. Chemical Wood Pulps	Coniferous	Alpha		PAPER * Nitration *	
		Kraft	Unbleached	Raw * Medium * Well Cooked *	
			Bleached	Semi Bleached * Fully Bleached *	
	Hardwoods	Soda Alpha		Semi Bleached * Bleached *	
		Sulphite Kraft		Unbleached * Bleached *	

* The use of the "C" stain in many cases requires close observation and color discriminations. The differentiation of the starred items in some cases is of doubtful certainty.

The stain is prepared from the following solutions:

(A) Standard Iodine Solution

Add 50 cc. of distilled water and 0.90 gram of dry potassium iodide to 0.65 gram of dry iodine. Intermix the dry KI and iodine by crushing them together in a beaker, then add the distilled water, a drop at a time, crushing and mixing until the iodine is completely dissolved in the saturated iodide, and finally add the rest of the water.

(B) Aluminum Chloride Solution, Sp. Gr. 1:15 at 28 deg. C.

Add about 40 grams of aluminum chloride, $AlCl_3 \cdot 6 H_2O$, to 100 cc. of distilled water.

(C) Calcium Chloride Solution, Sp. Gr. 1:36 at 28 deg. C.

Dissolve about 100 grams of calcium chloride, $CaCl_2 \cdot 2 H_2O$, in 150 cc. of distilled water.

(D) Zinc Chloride Solution, Sp. Gr. 1:80 at 28 deg. C.

Add about 100 cc. of distilled water to 200 grams of C. P. zinc chloride (fused sticks in sealed glass containers).

To 20 cc. of solution *(B)*, 10 cc. of solution *(C)*, and 10 cc. of solution *(D)*, thoroughly mixed, add 12.5cc. of solution *(A)*. Mix well, pour into a tall, narrow vessel, and place in the dark. After 12 to 36 hours, when the precipitate has settled, pipette off the clear portion into a dark glass-stoppered dropping bottle, add a leaf of crystal iodine, and keep in the dark when not in use.

Note: All of the solutions must be at their exact specific gravities and must be measured with pipettes graduated to 0.1 cc.

For staining, put on the slide, prepared from the sample by the standard method, 3 or 4 drops of the stain and carefully cover with a cover glass in such a manner that there are no air bubbles and that none of the stain flows outside the sample. Let stand from 1 to 2 minutes, then drain off the surplus by carefully tilting the slide on edge on a clean absorbent blotting paper. See that the under part of the slide is perfectly dry and clean, and place on the microscope stage for examination.

(4) FIBER DIFFERENTIATION

For convenience in studying fibers it is desirable to have a classification of them from a papermaker's standpoint. Such a classification is shown in Table III[3]. It is to be understood that this is not a botanical classification, and any standard textbook should be consulted if that information is desired.

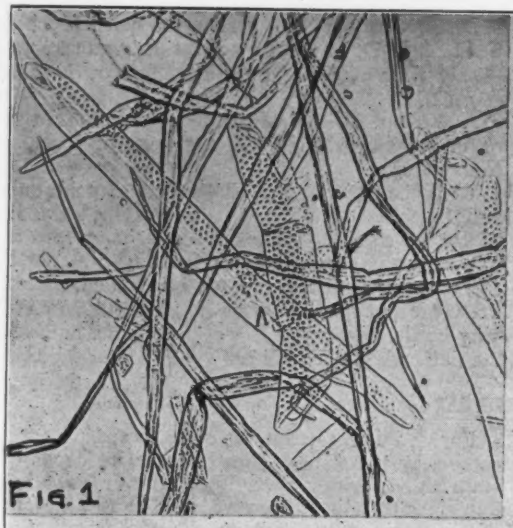
TABLE III—CLASSIFICATION OF PAPERMAKING FIBERS

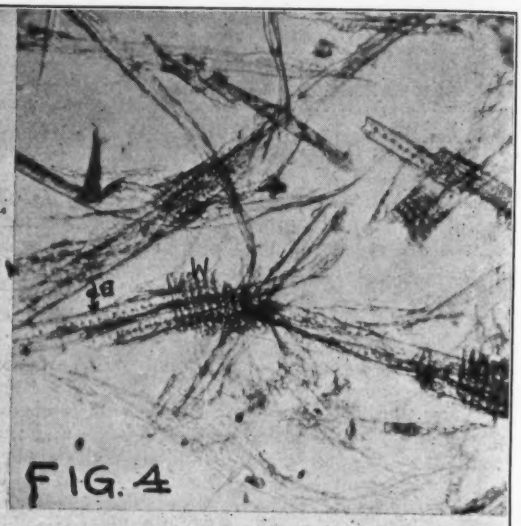
A. *Seed-hair Fibers*, growing on seeds	Cotton
B. *Bast Fibers*, from the inner bark of trees, shrubs and other plants	Flax (Linen) Hemp Jute Ramie Kodzu (Paper Mulberry) Mitsumata Gampi Saw Grass
C. *Leaf Fibers*, from the leaf or leaf stalk	New Zealand Flax Abacá (Manila) Sisal Aloe (American Century Plant) Pineapple
D. *Hull Fibers*	Coconut
E. *Stem Fibers*, from the main stem or trunk of the plant	Coniferous Wood Fibers Deciduous Wood Fibers Straw Esparto Cornstalk

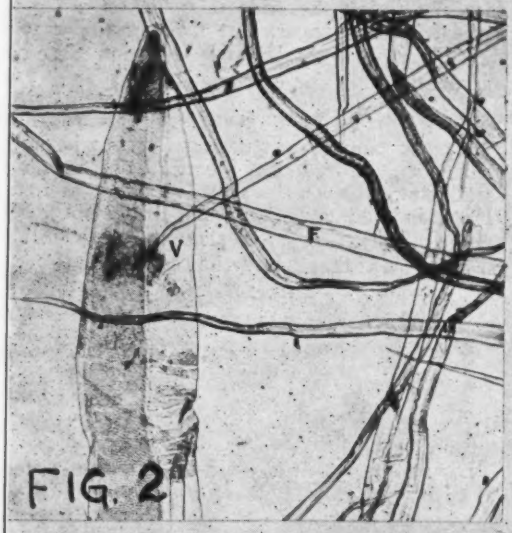
It should be pointed out that, while the microscope yields valuable information, the methods of microscopy must be used with care and caution; the personal equation is often a large factor. Then, too, it is necessary to deal with materials which are often abnormal. It is entirely possible that some characteristic fiber or cell may have been removed or lost. Beating may alter the fibers considerably. Caution should also be observed in interpretation of illumination effects. Trials on known materials are a great help in identification.

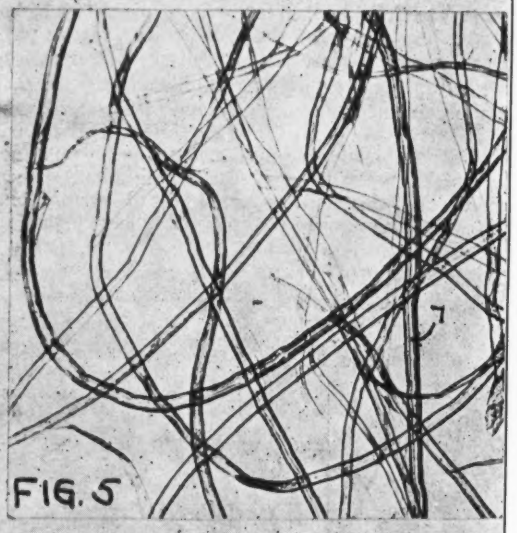
Methods of differentiation are divided into five classes by Calkin *(6)*:

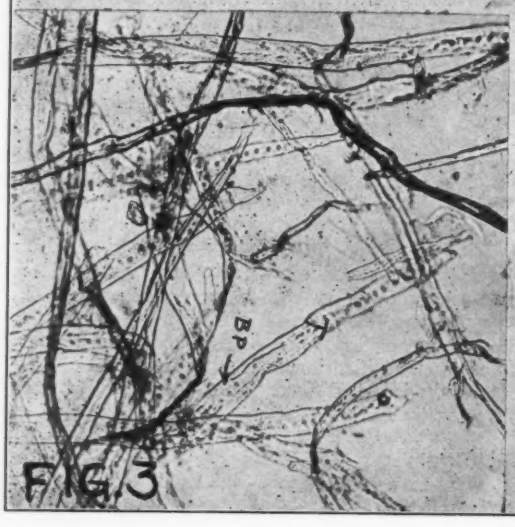
1. Morphology of fiber.
2. Staining.
3. Illumination effects.
4. Refractive index.
5. Combination of two or more methods.

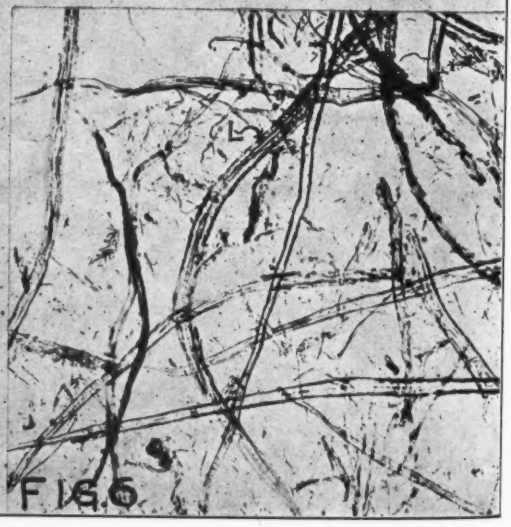




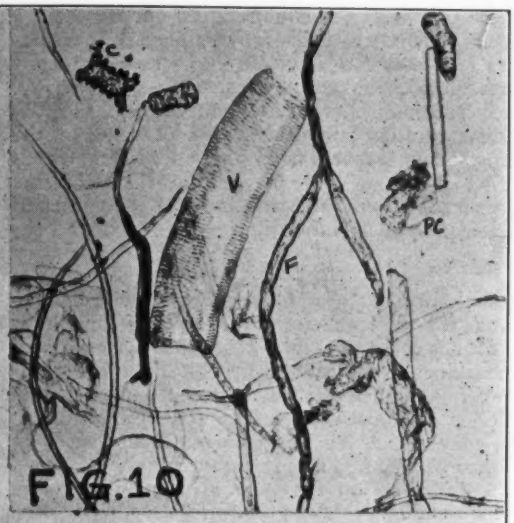


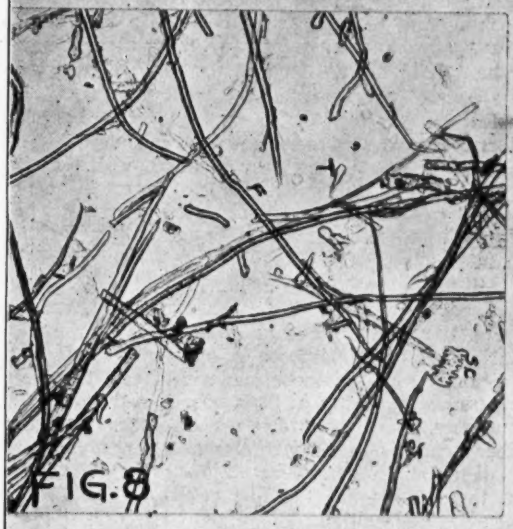


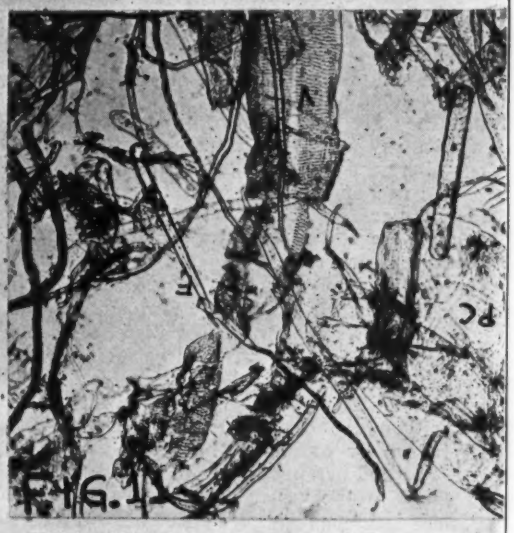


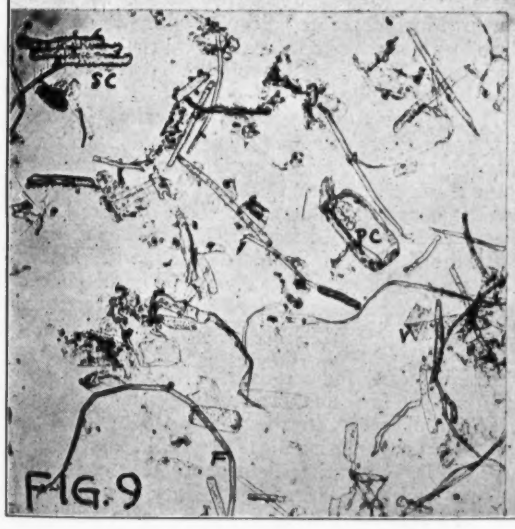


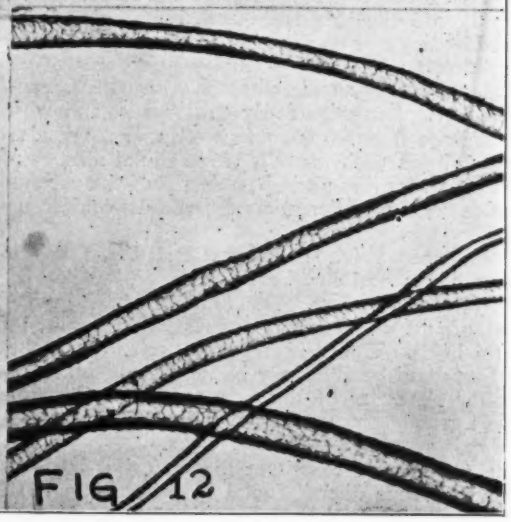
FIGS. 1, 2, 3, 4, 5 AND 6.











FIGS. 7, 8, 9, 10, 11 AND 12.

There is much excellent literature on morphology of fibers, including articles by Hanausek (various papers in *Papier-Fabrikant* dealing with microscopy of paper pulp), and books by Hanausek-Winton *(19)*. Herzog *(22)*, Matthews *(28)*, and Carpenter *(8)*. Photomicrographs and descriptions of some of the more common paper making fibers are shown in Figs. 1 to 11. These were prepared by C. W. Mason, Professor of Chemical Microscopy, Department of Chemistry, Cornell University.

[3] cf. Clark, *Paper*, *23*, No. 25, 12 (Feb. 26, 1919).

In the morphology of fibers there are two characteristics for differentiation, the type of cells (the term fiber is often used in a loose sense for cell), and the markings on those cells. Not only are these characteristic of the particular genera or species, but conditions of growth, climatic and geographical features, may affect the morphology. The cells in a pulp may be well separated or only imperfectly separated, depending on the type of chemical process used in cooking. In the groundwood or mechanical process, the pulp shows the presence of torn fibers and of fiber bundles.

In the pulps from deciduous woods (Figs. 1 and 2) the fibers (F) are much shorter and somewhat narrower than the tracheids (T) of conifers (Fig. 3). The fibers contain bordered pits, but they are so small that they are only occasionally visible at 100 X and then many times only after careful examination. The fibers from deciduous or broadleaf woods (often called deciduous fibers) are not unlike many of those of the grasses (compare Figs. 1, 2, 8, 9, 10, 11), and it is only with the utmost care and with known samples for reference that such a mixture can be approximately analyzed. Fortunately such mixtures come up for analysis infrequently. The vessels (V)—more correctly termed vessel-segments—are characteristic of pulp from deciduous woods, and are much less abundant than the fibers. They are considerably larger in diameter than the fibers (never less than 2 or 3 times), and show obvious pits (P) in greater or less degree. The details of the shape, size and arrangement of the pits, and the size and shape of the vessels, serve to differentiate the various deciduous pulps. (See also TAPPI Method T 8 sm-37).

The most characteristic cells in coniferous pulps (Fig. 3) are the long, thin-walled tracheids (T), marked by single or double rows of irregularly spaced bordered pits (BP) and sometimes by differently arranged, apparently simple, pits of various sizes. Tapering fibers, often with fairly thick walls, and with faint oblique fissures or surface striations, are also found. The parenchyma cells are small flat cells, usually having very tiny pits. The details of the various tracheids serve to differentiate the various coniferous pulps.

Groundwood (Fig. 4) is characterized by fine bits of torn fibers and by the presence of bundles of fibers. Some of these fiber bundles show undisturbed groups of medullary rays at right angles to the tracheids. The general characteristics of the torn fibers and bundles may be used as an index to show the character of the pulp produced. Groundwood is usually produced from conifers, but deciduous woods are sometimes used.

Jute and manila constitute the majority, but not all, of the "rope fibers" found in papermaking. It is sometimes essential to differentiate them. Manila fibers (Fig. 5) have a well-defined, quite uniform, uninterrupted central lumen (L) which differentiates them from the jute fibers (Fig. 6) which have a variable central lumen (L), changing in the same fiber from broad to narrow and even being entirely interrupted at certain places. Nodes and cross striations are absent in both manila and jute, but are present in some rope fibers. The cell walls of jute have longitudinal striations. Manila pulps *sometimes* have small cells (staining brown with Herzberg's stain) which occur singly or in groups. These are so infrequent that they cannot be considered characteristic but do denote the presence of manila if they can be found. Manila and jute can sometimes, *but not always*, be differentiated by the observation that jute stains yellow and manila wine-red with the Herzberg stain. In the analysis of rope papers there are cases where it may be advisable to take special cognizance of the different colors developed by jute and manila, as these colors are indicative of the previous history of the fibers[4]. "Unbleached jute stains a strong yellow with Herzberg stain; jute that has been cooked moderately and then bleached gives a lighter yellow color; after drastic cooking and bleaching, the color is a steel blue or gray. Manila hemp may vary from a dark blue to a light red (not so deep as for rag), depending on the degree of cooking and bleaching."

Rag pulp (Fig. 7) consists of cotton and linen fibers. As rags usually undergo considerable treatment, it is not always easy to distinguish the twists of cotton and the nodes (N) of linen. Except in special cases they are not reported separately, being grouped under the general designation "rag".

[4] Peterson, Private communication.

Esparto (Fig. 8), the straws (Fig. 9), cornstalk (Fig. 10), and bagasse (Fig. 11) contain the widest variety of cells. Esparto is encountered in papers, especially some of those made in Great Britain; the others occur mostly in fiber board used for building purposes. The general class of grasses used for fiber board is in need of systematic study in order to differentiate them. The majority of the cells found in these pulps are the fibers (F), which are fine, slender, and without distinctive structure. Serrated cells (SC), pith cells (PC), or rings from annual vessel, and vessels (V) are present in all these plups. Most characteristic of esparto are the "tear drop" or comma-shaped hairs or bristles, known as trichomes (T); but unless care is exercised, they may be overlooked.

It is frequently desirable to make photomicrographs of fibers examined, as these serve as a permanent record. For information on equipment and its use for this purpose, it is suggested that the analyst consult the literature. The subject has been discussed by Chamberlain *(10)*, Eastman Kodak Co. *(12)*, the Bureau of Standards *(38)*, and West *(40)*.

It should be noted that morphological characteristics have certain limitations in fiber differentiation. Herzog *(23)* is unable to differentiate flax and hemp except by chemical means. Swett *(34)* also uses chemical means for certain rope fibers.

In routine fiber analysis staining is most commonly used for fiber identification. A set of colored plates has been prepared by the Federal Bureau of Standards *(39)*[5], illustrating eight paper fiber compositions as seen under the microscope. They are intended to serve as reference standards for use in the identifi-

cation of papr fibers and in the estimation of the fiber composition of paper.

Various stains have been developed to differentiate between soda and sulphite pulp. According to Geohegan *(15)*, "The stains which are recommended for distinguishing between sulphite and soda fibers, distinguish between the fibers of coniferous and deciduous wood, and not between the methods by which they were cooked." Alexander's stain *(37)* is used for this purpose. Geohegan considers Selleger's stain more convenient than the Alexander stain. He gives several modifications of the former stain and also two other stains for the same purpose.

[a]Reproduced in "The Manufacture of Pulp and Paper," Vol. V, 5, between pp. 66-67 (1929).

Kantrowitz and Simmons *(26)* have compared the Bright method for the determination of bleached and unbleached fibers with certain more rapid methods.

Fiber differentiation stains, other than those given here, are also used *(35)*. Numerous such stains are described in the literature. They should be examined critically on known samples before attempting to use them on analyses.

Many fiber characteristics may be accentuated by using proper illumination. Chamot and Mason *(11)* and Gage *(13)* describe methods and technique of illumination effects. Care must be exercised to be on the watch for abnormalities in various fibers and a set of known samples is a great help. Pleochroism has been used, according to Behrens *(3)*, for fiber identification. Refractive indices may also be helpful in identification *(24)* *(25)*.

Wool: In addition to the vegetable fibrous raw materials, wool is commonly used for papermaking. It is usually found in building paper *(1)* and sometimes in mulching paper. The fibers are illustrated in Fig. 12. They have the following characteristics *(29)*:

Dimensions—Length, 25-200 mm.; Diameter, 0.010-0.100 mm.

Microscopic appearance—Under even moderately low magnification (50 X) the epidermal scales on the surface of the fiber can be seen. Neither silk nor any of the vegetable fibers have this appearance and permit the under cortical layer to be seen through them. The medulla, commonly called the pith, from its analogous structure in plant stem, can usually be seen in the coarser fibers.

Micro-chemical reactions—Iodine-zinc chloride solution, pale yellow; HNO_3, deep yellow color; HCl or H_2SO_4, gradually dissolves with red coloration.

Blaisdell and Minor *(4)* have discussed various methods for determining the wool content of paper. They recommend the use of the microscope dot-count method, using a factor of 2.0 for wool (basis, cotton = 1.0).

Synthetic Fibers: In view of the considerable use of artificial or synthetic fibers in textiles, these may be found in some rags. Their characteristics are given by Chamot and Mason *(11)*. The effects of the various stains and of beating have not been investigated microscopically.

(5) Determination of Percentage Composition

To check analyses of fiber composition, slides of fibers in known proportions are made. Pure stock is beaten in a small beater and made into hand sheets. To make up a field of known composition take weights of the pure fiber sheets, of the same moisture content, and make up a total of at least 5 grams in proportions to give the percentage desired. Disintegrate and mix thoroughly by shaking with small glass beads or pieces of glass rod in a bottle, or by the action of a small disintegrator. Sample and make up the slide as for any disintegrated paper sample.

The analysis of the fiber content is based on the relative proportion of the kind of fibers contained therein, expressed on a percentage basis, considering the total fiber content as 100 per cent, no account being taken of the percentage of clay, alum, size, etc., that may be contained in the paper.

Spence and Krauss *(33)* have pointed out that the various fibers do not have the same weight. This introduces an error in fiber analyses made on a length or number basis. The originators of the method determined some weight factors. Weight factors have also been determined by micrometer mensuration *(17)*.

The following methods, while not considered of sufficient general applicability to be adopted as standard procedure, are used by fiber analysts and yield reliable results after sufficient experience has been obtained in their use:

(a) Estimation Method: This method involves training the eye by the comparison of known samples with standard mixtures of known composition. This may be done by the use of a comparison eyepiece, but can also be done with the usual monocular or binocular microscope. Accuracy in the estimation method requires considerable practice and continual reference to standard mixtures. In some laboratories, it is customary to have several analysts estimate the same sample and then average the results. Although this method gives accurate results when used by experienced analysts, the actual counting of the fibers is considered a more practicable procedure for general use, as it enables comparatively inexperienced operators to obtain satisfactory results. The method, however, avoids the use of any weight factors.

(b) Howard's Count Method: In this method *(31)* equal weight is not given to all fibers in a field. Recourse must be had to standard samples to determine the allowances necessary for different types of fibers and for the length of the fibers and conditions of hydration.

(c) Fiber-Weight-Length Method: This method was proposed by Spence and Krauss *(33)* who used the diameter of the field as seen through the microscope as the unit of measure. Weight factors are used in calculating the percentage composition.

Graff *(17)*, at one time measured the length of the fibers with a micrometer eyepiece but now considers the method to be impractical. The method has been further elaborated by Calkin *(7)* and by Graff and Hodgdon *(18)*. The fibers are arranged in parallel on the slide and their lengths determined with the micrometer eyepiece. The lengths, as determined by measurement, are corrected to a weight basis by the use of weight factors, and the composition of the paper is expressed as a percentage. This method is somewhat time-consuming, but is capable of very accurate results after proficiency has been obtained in measuring the fiber lengths.

(6) Spot Stains for Groundwood

It is often desirable, in the plant or laboratory, to detect the presence or absence of groundwood, without special reference to any exact percentage or to the other constituents in the paper. No microscopic examination is necessary; the stain is simply applied to the paper and the color noted. The following stains are used for this purpose:

(a) Phloroglucinol: Dissolve 5 grams of phloroglucinol in a mixture of 125 cc. of water and 125 cc. of conc. HCl. Keep the solution in the dark as much as possible, as it is prone to lose its staining property on exposure to light. This solution produces a *magenta* or *wine-red* color on mechanical pulp, (groundwood). The color may be easily noted by applying some of the stain to a piece of newsprint paper, which contains approximately 80 percent of mechanical pulp and develops a deep magenta color. The depth of color is an indication of the amount of mechanical pulp present. A very light shade of color, however, does not necessarily prove the presence of mechanical pulp, as partly cooked jute, partly cooked unbleached sulphite pulp, and some other fibers are also slightly colored. In many cases jute papers show a remarkably deep coloration with this stain[6]. For strong papers of this type, observations should be checked microscopically.

An alternative formula is as follows:

Phloroglucinol	2 grams.
Alcohol (95 per cent)	100 cc.
Conc. HCl	50 cc.

Herzberg *(21)* gives a set of plates showing the approximate percentages of groundwood as determined with phloroglucinol. Known standards containing various percentages of groundwood may be prepared and these used as a basis of comparison for these special stains.

(b) Aniline Sulphate: Dissolve 5 grams of aniline sulphate in 50 cc. of water and acidulate with 1 drop of conc. H_2SO_4. This produces a *yellow* color on papers containing a large percentage of mechanical pulp. It is not quite so sensitive to mechanical pulp as phloroglucinol, but is easier to obtain and prepare and costs less.

(c) Para-nitroaniline: Saturated solution in conc. HCl. This stain produces an *orange-yellow* color in the presence of mechanical pulp and other lignified fibers.

In the use of stains for application to the surface of paper, it is well to caution the user on one point. Many of the dyes used for colored papers are sensitive to acids and the color change, while being the correct one to show the presence of groundwood, may be due not to this cause but to the action of the acid on the dyestuff. For colored papers it is well in case of doubt to run a blank test with a little diluted acid. This holds true also for some types of safety check paper.

[6] Peterson, Private communication.

Literature References

(1) *Am. Soc. Test. Mat.*, Standard D 272-29 T.
(2) Bartsch, *Papier Ztg.* 36, 866 (1911); *J. Soc. Chem. Ind.* 30, 414 (1911); *Papier-fabr.* 16, 171 (1918).
(3) Behrens, "Anleitung zur Mikrochemischen Analyse", Ed. 2, Voss, Hamburg and Leipzig (1908).
(4) Blaisdell and Minor, *Paper Ind.* 15, 625 (1934).
(5) Calkin, J. B., *Paper Trade J.* 99, No. 22, 27-36 (November 29, 1934).
(6) *Ibid.* 96, No. 3, 37 (January 19, 1933).
(7) *Ibid.* 91, No. 9, 44; No. 20, 54 (August 28 and November 13, 1930).
(8) Carpenter, "An Atlas of Paper-Making Fibers". New York State College of Forestry, Syracuse (1931).
(9) Carsen, F. T., "An Extractor and Friction Cleanser". *Paper* 35, No. 17, 39-40 (February 12, 1925).
(10) Chamberlain, "Method in Plant Histology", Chap. 13, University of Chicago Press (1924).
(11) Chamot and Mason, "Handbook of Chemical Microscopy". I. Wiley, New York (1930).
(12) Eastman Kodak Company, "Photomicrography".
(13) Gage, "The Microscope". Comstock, Ithaca (1932).
(14) Geohegan, K. P., "Notes on Analytical Paper Microscopy". *Paper Industry* 11, 473 (1929).
(15) Geohegan, *Paper Trade J.* 88, No. 23, 63 (June 6, 1929).
(16) Graff, J. H., *Paper Trade J.* 100, No. 16, 45-50 (April 18, 1935).
(17) Graff, *Tech. Assoc. Papers* 8, 66 (1925).
(18) Graff and Hodgdon, *Paper* 23, No. 13, 11 (December 4, 1918).
(19) Hanausek-Winton, "Microscopy of Technical Products". (1916).
(20) Herzberg, W., "Papierprufung". Revised and enlarged by R. Korn and B. Schulze, 7th Ed., Berlin, Springer (1932).
(21) *Ibid.*, pp. 149-150.
(22) Herzog, "Mikrophotographischer Atlas der technisch Wichtigen Faserstoff". Obernett, Munchen (1908).
(23) Herzog, "Die Unterscheidung der Flachs und Hanffaser". Berlin, (1926).
(24) Herzog, "Die Unterscheidung der naturlichen und kunstlichen Seiden". Dresden, (1910).
(25) Herzog, *Chem. Zeit.* 40, 528 (1916).
(26) Kantrowitz and Simmons, "Rapid Methods for the Determination of Bleached and Unbleached Fibers in Pulp and Paper". *Paper Trade J.* 98, No. 10, 46-48 (March 8, 1934); U. S. Government Printing Office *Technologic Bulletin* No. 20.
(26a) Korn, *Zellstoff u. Papier* 5, No. 12, 474 (Dec., 1925).
(27) Lofton and Merritt, "Method of Differentiating and Estimating Unbleached Sulphite and Sulphate Pulp in Paper". U. S. Bur. Standards *Technologic Paper* 189.
(28) Matthews, "Textile Fibers". Wiley, New York (1932).
(29) McMurtrie, "Report upon an Examination of Wools and Other Animal Fibers", U. S. Government Printing Office, Washington (1886).
(30) Minnear and Withrow, *Paper Trade J.* 91, No. 24, 51 (December 11, 1930).
(31) Reed and Machmer, "Determination of the Fiber Content of Paper". U. S. Government Printing Office, *Tech. Bull.* No. 1 (1923); *Paper Trade J.* 76, No. 17, 47 (1923).
(32) Shaffer, *Ind. Eng. Chem., Anal. Ed.*, 5, 35 (1933).
(33) Spence, G. K. and Krauss, J. M., *Paper* 20, No. 11, p. 11 (May 23, 1917).
(34) Swett, C. E., *J. Ind. Eng. Chem.* 10, 227 (1918).
(35) *Tech Assoc. Papers* 16, 56, 57 (1933).
(35a) *Ibid.*, 18, 293 (1935).
(36) Tech. Assoc. Pulp and Paper Ind., "Manufacture of Pulp and Paper", V. 5, 60. McGraw-Hill Book Company (1929).
(37) *Ibid.*, p. 62.
(38) U. S. Bur. Standards, "Photomicrography of Paper Fibers". *Tech. Paper* 217 (1922).
(39) U. S. Bur. Standards, "Pulp and Paper Fiber Composition Standards". *Tech. Paper* 250 (1924).
(40) West, "The Practical Principles of Photomicrography". Campbell, Dundee, N. Y. (1916); Tennant and Ward (1916).

Bibliography Reference

Calkin, John B., "Microscopy of Paper". TAPPI Special Bibliography Series—No. 1 (1937). Technical Association of the Pulp and Paper Industry, New York, N. Y.

Review Of Paper Industry Literature

Copies of United States Patents can be obtained from the United States Patent Office, Washington, D. C. for 10 cents each. Send currency, not stamps.

Sulphite Waste Liquors

Yeast from Sulphite Lye. H. Landmark. Tek Ukeblad 83, no. 41:458-459 (Oct. 8, 1936); Tech. Bull., Paper Makers' Assoc. Gt. Britain, Ireland 15, no. 7:94 (July, 1938); B. I. P. C. 8:501.—"Sulfite cellulose lyes contain about 25 kg. sugar per cubic meter of which 16 kg. are fermentable. Lime or soda is added to bring the *p*H value to 6.0-6.5. After settling for 24 hours the liquid is decanted, heated to 28-30°C., and filtered. Molasses, to give a sugar content of 3.5 per cent, yeast, malt, ammonium sulfate, and superphosphate are added. Sterilized air is bubbled through the liquid. The yeast is separated, washed several times, and filtered in the usual manner. It is light in color and has a neutral taste. The yield is 160 parts of yeast for every 100 parts of fermentable sugar utilized. The yeast contains 30 per cent of dry matter. The molasses may be replaced by algae (especially *Laminaria digitata*) which can give 10-20 liters of 100 per cent alcohol per 100 kg. dry

matter. The yeast then contains a little iodine, but this is no disadvantage."—C.J.W.

Isolation of Guaiacol and Pyrogallol 1, 3-Dimethyl Ether from Hardwood Sulphite Waste Liquor. F. Léger and H. Hibbert. Can J. Research 16B:151 (1938).—Treatment of beech, birch and maple sulphite waste liquor with 9 per cent sodium hydroxide at 150°C. yielded acetosyringone, guaiacol and pyrogallol 1, 3-dimethyl ether.—A.P.-C.

Process for the Recovery in a Biological Manner of Sulphur and Lignin Present in Sulphite Waste Liquor. F. Sigora, Pols. Aust. pat. 151,309 (June 15, 1937).—The diluted sulphite waste liquor is decomposed with potassium salts and phosphates and if necessary also with albumin, then with sulphate reducing bacteria, for example, microspira desulfuricans and innoculated with protease producing bacteria, for example, bac. subtilis. The fermentation taking place in a closed container and requiring two to three weeks.—J.F.O.

Process for the Treatment of Materials Containing Lignin and Cellulose for the Production of Products Containing Oxygen. H. Bergstrom and K. N. Cederquist, Stockholm. Ger. pat. 652,496 (Feb. 27, 1934).—The process is carried out under the action of water, steam, or a mixture of both on the starting product, in the presence of oxides, hydrates or carbonates of calcium or similar metals with an atomic value of two or more. The temperature should be above 250°C., preferable about 325°C. and the process should be carried out under pressure. The residue resulting is then subjected to dry distillation. Large quantities of volatile products are obtained such as methyl, ethyl and propyl alcohols and higher alcohols, phenol and hydrocarbons.—J.F.O.

Mechanical Process

Observations Made During the Manufacture of Newsprint. T. Wiklund. Finnish Paper and Timber J. 20, no. 10:407-408, 410, 412, 414-416 (May 31, 1938); B. I. P. C. 8:428.—The author discusses certain problems of newsprint manufacture with reference to special features on the paper machines installed in the Finnish mill at Woikka. He refers to vibrating screens and their effect upon stock flow, the construction of the head box and high pressure outlet, also in their relationship to the breast roll, means for preventing the formation of worms (or snakes) in the sheet upon the wire, the relative speed between the couch roll and the first press with special consideration of variations between summer and winter conditions and the percentages of chemical pulp and groundwood, the discharge of condensate from the dryers, the winder drive and method of control, the treatment of broke and white water, and the mixing of the furuish. In conclusion, brief reference is made to methods of slime prevention. A table giving important operating data of five newsprint machines at Woikka is included.—C.J.W.

Timely Problems in the Pulp Industry. Ragner Monnberg. Finnish Paper and Timber J. 20, no. 11: 446, 448, 450 (June 15, 1938); B. I. P. C. 8:501.—With reference to the decrease in production and related higher operating cost of sulfite pulp manufacture, attention is drawn to the savings to be secured by increasing sulfite yield. This method, applicable to newsprint manufacture only, has been described by H. J. Rowley in Pulp Paper Mag. Can. 38: 92-6 (1937). The cooking procedure is followed by a refining treatment in Sutherland refiners.—C.J.W.

Quality of Groundwood Pulp and Research. Arne Sperre. Papir-J. 26, no. 11:133-135 (June 20, 1938); B. I. P. C. 8:468.—The author points out the necessity for further research in the manufacture of groundwood pulp, particularly for improving the quality, and discusses the factors in grinding and screening which offer possibilities of attack.—C.J.W.

Process and Device for the Treatment of Ground Wood, Pulp and Similar Materials. L. Biffar and J. Jung, Miltenberg. Swed. pat. 89,896 (April 18, 1936).— The stock to be treated passes through the center of a stationary stone and then by the action of the rotating stone, passes between the stones and against a screen plate which extends around the periphery of the casing for the stones.—J.F.O.

Miscellaneous Digesting Processes

Process for the Mild Dissolving Out of Cellulose. G. Frey, H. Tyden, and T. Karlssons. Swed. pat. 89,225 (Jan. 16, 1934).—In order to dissolve out the cellulose from the material containing cellulose, it is first treated with an oxydation medium and then cuprous ammonia solution. The swollen cellulose is then put in a beating device.—J.F.O.

Process for the Decomposition of Fiberous Materials from Plants. L. Jaloustre, Paris. Aust. pat. 150,312 (March 15, 1937).—The raw material, cut up straw or wood chips of beech, spruce, and pine wood; is treated with a mixture of steam and oxygen at a temperature of between 100 and 200°C. The lignin is attacked by the oxygen and the water vapor is taken up by the cellulose. In a second stage, a further decomposition takes place with alkalies, chlorine solution, alcohol, etc., but under milder conditions.—J.F.O.

Apparatus for Treatment of Straw and Other Fibrous Vegetable Materials. Straw Pulp and Fodder Comapny, Ltd., and A. L. Panton, Brit. pat. 480,772 (May 26, 1936).—In order to render it fit for paper pulp (or cattle feed) the raw material is pressed to an apparent density of 20 to 30 lb. per cu. ft., subjected to vacuum, and then steamed, first at high pressure, then under partial vacuum, and lastly at moderate pressure. The treated material may be cut and ground for direct incorporation into cattle cake, or the cellulosic fiber may be separated by washing and straining and the residual liquid concentrated by evaporation for cattle feed.—A.P.-C.

Beating

Installation of a Hollander. Wochbl. Papierfabr. 69, no. 10:211; no. 14:303; no. 15:327 (March 5, April 2, 9, 1938); B. I. P. C. 8:425.—The inquirer intends to install a new beater in the only place available, which gives the pulp suspension a flow distance of about 9 m. from the discharge valve of the hollander to the chest through pipes of about 200 mm. inside width at a head of about 90 cm. He is afraid that this head is not sufficient and that the hollander will not discharge well. The beater will be used only occasionally and it is not so much a matter of rapid discharging, but of emptying at all under these conditions. Since the pulp is prepared from waste paper, the presence of the usual trash seems to make the use of a pump unadvisable. Such an installation can be successful when somewhat wider pipes (about 250-300 mm. inside width) are used and a water spray is connected with the line close to the beater discharge valve, so that the draining pulp can be diluted when necessary. Bends in the piping should be avoided. The

use of a pump, apart from difficulties with trash, would make the system uneconomical.—C.J.W.

Influence of Fiber Length and Fiber Slime on the Degree of Beating and the Strength Properties of Beaten Pulp. M. Steinschneidr and E. Grund. Papier-Fabr. 36, no. 1: 1-12; no. 2: 13-21 (Jan. 7, 1938).—The degree of beating of a beaten pulp can be determined unequivocally by no method that has as its basis the speed of de-watering of a fiberous mixture. The degree of beating of a fiberous mixture is dependent on the amount of slime, the average fiber length and the "feltability" of the individual fibers. The tearing length of a stock is dependent on the strength of the individual fiber, the "feltability" of the beaten stock and on a third factor which we shall call the "ability to be pressed together." The zero tearing length is proportional to the strength of the individual fiber only in the lower range of the degree of beating; in the high range of beating where the slime content is high this is not true. The beating work done in the Jokro and the ball mill are similar and it consists mostly in a crushing action. The slime material exerts a certain gluing action which increases the tearing length of beaten and unbeaten stocks a certain per cent, for unbeaten fiber about forty per cent. The article is accompanied by a great number of curves and tables of data. The stock was treated in the Jokro beater, the ball mill and the Rieth beater. —J.F.O.

Bating Device for Ground Wood and Similar Materials.. M. Menzel, Leipzig. Ger. pat. 652,678 (Jan. 13, 1937).—The invention concerns a pair of artificial stones in the shape of rings. Air passages are provided between the working bars on the face of the ring.—J.F.O.

Beating, Washing or Bleaching Machines for Paper Pulp. Samuel Milne, Brit. pat. 479,030 (Jan. 28, 1938).—Means are provided for supplying white water, alum, or other fluid to a breast plate in front of the lower part of the roll, the fluid being guided by the plate and fed to the pulp in the trough in front of the roll at the lower part of the breast plate.—A.P.-C.

Bleaching

Chemistry of Bleaching Chemical Wood Pulps. J. D. Rue. Trans. Electro-Chem. Soc. 73: 137-149 (1938).—The mechanism of belaching with hypochlorite and by chlorination methods is described. The importance of *p*H control during multistage bleaching to obtain the desired selectivity of the chlorination and oxidation effects is stressed. In hypochlorite bleaching the temperature largely regulates the rate of reaction, whilst the final purity of the cellulose depends on the ease with which the reaction products can be washed out. For this the forces of adsorption of these impurities on, and the velocity of diffusion out of, the cellulose are important factors. —A.P.-C.

Process and Device for the Bleaching of Pulp in Web and Sheet Form. Maschinenfabrik Buckau Wolf A.G., Magdeburg. Ger. pat. 651,775 (Sept. 15, 1935).—The web or sheet of pulp is perforated with a sharp punch, the size of the holes and the distance apart depending on the thickness of the pulp. The pulp so treated takes up the bleach liquor quicker and gives a more even bleach.—J.F.O.

Process for the Bleaching of Pulp. Deutsche Solvay-Werke A.G. Bernburg. Ger. pat. 651,887 (Dec. 21, 1935).—The invention concerns a two-stage bleaching process with active chlorine. Each begins with a *p*H of over 7.5 and ends without change of liquor with a *p*H of 2 to 3. A quick passage over the neutral point is desirable. A pulp with high white color, high strength and resistance toward yellowing is thereby produced.—J.F.O.

Grinnell Co. Joins TAPPI

The Grinnell Company was founded in 1850 under the name of the Providence Steam and Gas Pipe Company, which, through consolidation, became the General Fire Extinguisher Company in 1892. Today, this company operates as a manufacturing company, selling its entire output through the Grinnell and American Moistening Companies. Its manufacturing plants and foundries are located in Providence and Auburn, R. I.; Warren, Ohio; Atlanta, Ga.; Columbia, Pa.; and Toronto and Oshawa, Canada.

The General Fire Extinguisher Company manufactures cast iron, malleable iron and brass pipe fittings, welding fittings, unions, pipe hangers, iron and brass valves, fire protection specialties, including Automatic sprinkler heads and special valves, unit heaters, air conditioning units, and fabricates pipe.

There are also distributing branch plants or warehouses located at Long Island City, N. Y.; Cleveland, Ohio; Chicago; Minneapolis and St. Paul; St. Louis; Philadelphia; Charlotte, N. C.; Montreal and Vancouver, Canada; San Francisco, Oakland and Los Angeles, Cal., and Seattle, Wash., where stocks are carried and machine work, such as cutting and threading pipe and other work which has to be done on the products at point of distribution, is performed.

Because of the complexity of its marketing problems, the company organized its selling into four main divisions: First—the Supply Division. This division sells general fire and purchased products through sales departments in the cities where manufacturing plants and warehouses already mentioned are located. Second—the widely known fire protection division, which is engaged in selling and installing automatic sprinkler systems. This division sells through contracting offices located in the United States and Canada. Third—the heating, air conditioning and industrial piping division, which handles all types of industrial piping installations and contracts for various types of air conditioning installations. Fourth—American Moistening Company, which sells humidifying systems direct to the user by contract.

The Grinnell Company offers a unique service in power piping work in that it combines in a single organization four elements which are essential in the most modern practice:

1—Technical engineering knowledge; 2—Practical engineering experience; 3—Special manufacturing facilities and experience; 4—Adequate construction experience and organization.

Thermolier, the Grinnell Unit Heater, is fast becoming the recognized leader in its field. The company also manufactures Air Conditioning Units, and is agent for the well-known Thermoflex Heating Specialty line.

Through its subsidiary, the American Moistening Company, it is in a position to offer humidifying equipment that has been standard in the field since 1888. The line is complete including both head and atomizer types with an automatic humidity control of unusual sensitiveness and reliability.

Imports of Paper and Paper Stock

Giving Manifests of New York, Boston, Philadelphia and Other Ports of Newsprint, Wrapping, Writing, Coated, Blotting, Tissue, Strawboard, Wallboard, Cigarette Papers, Sulphite, Kraft and Ground Wood Pulp.

NEW YORK IMPORTS

WEEK ENDING JUNE 3, 1939

SUMMARY

Cigarette paper.....1 cs.
Wall paper.....6 bxs.
Wall board.....375 bdls.
Paper hangings.....1 pcl.
Newsprint.....8998 rolls, 124 bdls.
Printing paper.....5 cs.
Wrapping paper.....104 rolls, 66 bls.
Kraft paper.....6 rolls
Filter paper.....17 cs.
Surface coated paper.....242 cs.
Photo paper.....2 cs.
Decalcomania paper.....36 cs.
Decalcomanias.....5 cs.
Transparent paper.....3 cs.
Tissue paper.....9 cs.
Colored paper.....1 cs.
Miscellaneous paper.....3328 rolls, 712 bls., 61 pkgs., 41 cs.

CIGARETTE PAPER

De Mauduit Paper Corp., *Normandie,* Havre, 1 cs.

WALL PAPER

S. K. Lonegren, *Gripsholm,* Gothenburg, 6 bxs.

WALL BOARD

A. H. Morner, *Kexholm,* Fagervik, 375 bdls.

PAPER HANGINGS

W. H. S. Lloyd & Co., *American Shipper,* Liverpool, 1 pcl.

NEWSPRINT

H. G. Craig Co., *Donpaco,* Donnacona, 369 rolls.
Parsons & Whittemore, Inc., *Kexholm,* Fagervik, 151 rolls.
Nolan Bowmall & Co., Inc., *Kexholm,* Fagervik, 43 rolls.
———, *Kexholm,* Hallstavik, 698 rolls.
Daily Mirror, *Bornholm,* Quebec, 2,627 rolls.
N. Y. Evening Journal, *Bornholm,* Quebec, 2,819 rolls.
———, *Oslofjord,* Oslo, 303 rolls.
H. G. Craig Co., *G.D.D.,* Donnacona, 367 rolls.
International Paper Co., *International #1,* Gatineau, 308 rolls, 124 bdls.
H. G. Craig Co., *Newscarrier,* Donnacona, 526 rolls.
International Paper Co., *G.T.D.,* Gatineau, 320 rolls.
N. Y. Evening Journal, *Scanstates,* Kotka, 283 rolls.
Jay Madden Corp., *Scanstates,* Kotka, 184 rolls.

PRINTING PAPER

S. H. Pomerance & Co., *Britannic,* London, 5 cs.

WRAPPING PAPER

Lunham & Reeve, Inc., *Gripsholm,* Gothenburg, 41 rolls, 66 bls.
Jay Madden Corp., *Scanstates,* Helsingfors, 63 rolls.

KRAFT PAPER

Metropolitan Paper & Bag Corp., *Gripsholm,* Gothenburg, 6 rolls.

FILTER PAPER

E. H. Sargent & Co., *Gripsholm,* Gothenburg, 17 cs.

SURFACE COATED PAPER

Gevaert Co., of America, *Black Tern,* Antwerp, 242 cs.

PHOTO PAPER

Medo Photo-Supply Co., *Acquitania,* Southampton, 2 cs.

DECALCOMANIA PAPER

B. F. Drakenfeld & Co., *Carinthia,* Liverpool, 31 cs. (duplex), 5 cs. (simplex).

DECALCOMANIAS

Sellers Transportation Co., *Europa,* Bremen, 5 cs.

TRANSPARENT PAPER

M. J. Corbett & Co., *Rotterdam,* Rotterdam, 3 cs.

TISSUE PAPER

W. J. Byrnes & Co., *Carinthia,* Liverpool, 3 cs.
Heemsoth Kerner Corp., *Aquitania,* Southampton, 1 cs.
F. C. Strype, *American Shipper,* Liverpool, 5 cs.

COLORED PAPER

H. A. Harrison, *Black Tern,* Antwerp, 1 cs.

MISCELLANEOUS PAPER

F. L. Kramer & Co., *Kungsholm,* Gothenburg, 268 bls.
The Borregaard Co., Inc., *Kungsholm,* Gothenburg, 1,576 rolls, 61 pkgs., 124 bls.
Consolidated Paper Co., Inc., *Kungsholm,* Gothenburg, 42 bls., 1,752 rolls.
F. L. Kramer & Co., *Gripsholm,* Gothenburg, 132 bls.
Globe Shipping Co., *Normandie,* Havre, 4 cs.
Coty Processing Co., *Normandie,* Havre, 2 cs.
C. A. Redden, Inc., *Normandie,* Havre, 1 cs.
H. Reeve Angel & Co., Inc., *Arimasan Maru,* Yokohama, 13 cs.
Remington, Rand, Inc., *Arimasan Maru,* Yokohama, 2 cs.
Brown Bros., Harriman & Co., *Arimasan Maru,* Kobe, 19 cs.
———, *Oslofjord,* Halden, 110 bls.
National Cash Register Co., *Scanstates,* Copenhagen, 36 bls.

RAGS, BAGGINGS, ETC.

R. & V. Miller, Inc., *Kungsholm,* Gothenburg, 36 bls. rags.
Glaser Jaffe Woolstock Co., *Carinthia,* Liverpool, 13 bls. rags.
J. Cohen & Son Co., Inc., *Carinthia,* Liverpool, 16 bls. rags.
R. & V. Miller, Inc., *Gripsholm,* Gothenburg, 10 bls. rags.
———, *Stal,* Alexandria, 216 bls. bagging.
———, *American Shipper,* Manchester, 212 bls. paper stock.
Public National Bank Trust Co., *American Shipper,* Manchester, 4 bls. rags.
Chase National Bank, *American Shipper,* Manchester, 47 bls. rags.
Chase National Bank, *American Shipper,* Liverpool, 132 bls. bagging.
Darmstadt Scott & Courtney, *Black Tern,* Rotterdam, 12 bls. bag scrap.
Essemess Trading Co., *Scanstates,* Gdynia, 7 bls. rags.
National Bank, *Henri Jaspar,* Antwerp, 2 bls. rags.

HIDE CUTTINGS

———, *Carinthia,* Liverpool, 751 bags.

OLD ROPE

W. Steck & Co., *Gitano,* Hull, 47 coils.
National City Bank, *California,* Glasgow, 52 coils.

WOOD PULP

Gottesman & Co., Inc., *Etna,* Sweden, 1,140 bls. wood pulp.
Stora Kopparberg Corp., *Kexholm,* Skutskar, 265 bls. dry pulp.
Perkins Goodwin & Co., *Kexholm,* Sundsvall, 150 bls. dry sulphite, 180 bls. dry sulphate.
Chase National Bank, *Oslofjord,* Oslo, 385 bls. bleached sulphite.
The Borregaard Co., Inc., *Oslofjord,* Sarpsborg, 504 bls. unbleached sulphate.
Pulp Sales Corp., *Mormacport,* Wiborg, 2,540 bls. sulphite, 486 tons.
Bulkley Dunton Pulp Co., Inc., *Mormacport,* ———, 1,260 bls. sulphite, 213 tons.
Pulp Sales Corp., *Mormacport,* Kotka, 2,000 bls. sulphite, 400 tons.
M. Sone, *Belvedere,* Trieste, 446 bls. wood pulp.
Pulp Sales Corp., *Scanstates,* Kotka, 750 bls. sulphate, 150 tons.
Pulp Sales Corp., *Scanstates,* Wiborg, 3,098 bls. sulphite, 585 tons, 515 bls. mechanically ground pulp, 101 tons.
M. Sone, *Hercogs Jekabs,* Gdynia, 1,200 bls. wood pulp.

WOOD PULP BOARDS

H. Fuchs & Son, *Kungsholm,* Gothenburg, 64 crates.
H. Fuchs & Son, *Gripsholm,* Gothenburg, 52 crates.
Jay Madden Corp., *Mormacport,* Kotka, 99 rolls, 30 tons.
Jay Madden Corp., *Scanstates,* Kotka, 133 bls. 41 rolls, 30 tons.
Jay Madden Corp., *Scanstates,* Wiborg, 187 bls., 16 tons.

ALBANY IMPORTS

WEEK ENDING JUNE 3, 1939

Atterbury Bros., Inc., *Tennessee,* Drammen, 2,500 bls. dry chemical pulp.
Parsons & Whittemore, Inc., *Tennessee,* Drammen, 250 bls. dry chemical pulp.
The Borregaard Co., Inc., *Tennessee,* Tofte, 450 bls. bleached sulphite, 300 bls. unbleached sulphate, 150 bls. unbleached sulphite.
Atterbury Bros., Inc., *Tennessee,* Tofte, 2,510 bls. bleached sulphite.
Price & Pierce, Ltd., *Tennessee,* Tofte, 750 bls. bleached sulphite.
Pagel Horton & Co., Inc., *Etna,* Sweden, 4331 bls. wood pulp.
Price & Pierce, Ltd., *Etna,* ——, 1,050 bls. unbleached sulphite, 1,740 bls. unbleached sulphate.

BOSTON IMPORTS

WEEK ENDING JUNE 3, 1939

Gottesman & Co., Inc., *Hallaren,* Sweden, 375 bls. wood pulp.
——, *Clara,* Trieste, 800 bags hide glue, 275 bags bone glue.
——, *Black Tern,* Antwerp, 175 bls. rags.
E. Butterworth & Co., Inc., *Black Tern,* 167 bags gluestock, 186 bags old buffalo pickers.
Irving Trust Co., *Black Tern,* 54 bls. bagging.
Elliott Addressing Machine Co., *Tai Ping Yang,* Yokohama, 12 cs. paper.
Price & Pierce, Ltd., *Hallaren,* ——, 1,350 bls. unbleached sulphate, 4,200 bls. unbleached sulphite.

PHILADELPHIA IMPORTS

WEEK ENDING JUNE 3, 1939

Gottesman & Co., Inc., *Kexholm,* Sundsvall, 11,100 bls. dry sulphite.
Gottesman & Co., Inc., *Hallaren,* Sweden, 3,000 bls. wood pulp.
——, *Stal,* Tel-a-viv, 68 bls. rags.
——, *Stal,* Alexandria, 527 bls. old cotton rags.
Stora Kopparberg Corp., *Kexholm,* Skutskar, 1,855 bls. dry wood pulp.
Perkins Goodwin & Co., *Kexholm,* Norrsundet, 200 bls. bleached sulphite.
A. H. Morner, *Kexholm,* Sundsvall, 197 bdls. wall board.
Nolan Bowmall & Co., Inc., *Kexholm,* Sundsvall, 71 rolls newsprint.
Parsons & Whittemore, Inc., *Kexholm,* Sundsvall, 76 rolls newsprint.
——, *Kexholm,* Hallstavik, 414 rolls newsprint.
Jay Madden Corp., *Scanstates,* Kotka, 234 bls. wood pulp boards, 36 tons.
Public Ledger, Inc., *Scanstates,* Kotka, 571 rolls newsprint.
J. W. Hampton Jr., & Co., Inc., *Scanstates,* Kotka, 105 rolls newsprint.

BALTIMORE IMPORTS

WEEK ENDING JUNE 3, 1939

Pagel Horton & Co., Inc., *Kexholm,* Horneborg, 810 bls. dry sulphate.
——, *Kexholm,* Horneborg, 510 bls. dry chemical pulp.
Treetex Corp., *Kexholm,* Horneborg, 2,618 bdls. wall board.
——, *Kexholm,* Horneborg, 955 bdls. wall board.
Parsons & Whittemore, Inc., *Kexholm,* Sundsvall, 66 rolls newsprint.
A. H. Morner, *Kexholm,* Sundsvall, 718 bdls. wall board.
Perkins Goodwin & Co., *Kexholm,* Sundsvall, 1,800 bls. dry sulphate.
——, *Kexholm,* Hallstavik, 461 rolls newsprint.
Central Hanover Bank Trust Co., *Kexholm,* Norrkoping, 3,000 bls. dry sulphate.
M. Sone, *Hercogs Jekabs,* Gdynia, 3,900 bls. wood pulp.
M. Sone, *Kattegat,* Sundsvall, 4,500 bls. wood pulp.
M. Sone, *Kattegat,* Hernosand, 1,800 bls. wood pulp.
M. Sone, *West Cusseta,* Hamburg, 75 bls. wood pulp.
Price & Pierce, Ltd., *Rydboholm,* ——, 600 bls. unbleached sulphite.

NEW ORLEANS IMPORTS

WEEK ENDING JUNE 3, 1939

Tradesmans National Bank Trust Co., *Kexholm,* Norrsundet, 3,000 bls. bleached sulphate.
Perkins Goodwin & Co., *Kexholm,* Norrsundet, 250 bls. bleached sulphate.

MONTREAL IMPORTS

WEEK ENDING JUNE 3, 1939

Gottesman & Co., Inc., *Reias,* Sweden, 6,119 bls. wood pulp.

New Style Magnetic Clutch

A new Style "F" magnetic clutch and Style "FF" magnetic clutch-brake combination is announced by the Stearns Magnetic Manufacturing Company, Milwaukee, Wis., maker of an extensive line of magnetic separators and magnetic friction devices. These new magnetic clutches have been designed to meet the requirements of a compact, readily accessible clutch and clutch-brake combination adaptable particularly for flywheel or through shaft application as found on power presses, power shears, punch and stamping presses, die casting and similar operations.

A feature of the Stearns Style "F" and "FF" is the fact that they will fit into a surprisingly small area and their construction is much simpler than most magnetic clutches of similar ratings, and the speed of operation can be timed to meet exacting conditions. They can be supplied with the collector rings on the hub or on the body of the clutch or clutch-brake combination, whichever is desired.

The simplicity of design in the Style "F" and "FF" magnetic clutches and magnetic clutch-brake combinations affords ready accessibility for adjustments and lining replacement when necessary. They are made in a variety of combinations and sizes, information on which will be furnished by the Stearns engineering department. An added feature of the clutches is that they can be installed in the field to replace jaw or pin clutches or other types of mechanical drives, which can be replaced with magnetic devices.

Scott To Install New Unit

[FROM OUR REGULAR CORRESPONDENT]

CHESTER, Penn., June 5, 1939—The board of directors of the Scott Paper Company have approved the installation of a No. 16 paper-making unit. Ground has already been broken and the machine is expected to be in operation by December 1, this year.

Northern Changes Trade Name

VANCOUVER, B. C., June 5, 1939—Northern Paper Company, Limited, with registered offices at 102-744 west Hastings street, Vancouver, B. C., has changed its name to the Maritime Paper Company, Limited.

Miss Atwood Resumes Duties

BOSTON, Mass., June 5, 1939—Miss Ardell Atwood, office secretary of the New England Paper Merchants Association, has returned to her duties after a four weeks' illness.

LATEST MARKET REVIEW

New York Market Review

Office of the PAPER TRADE JOURNAL,
Wednesday, June 7, 1939.

The trend in the wholesale paper market continues upward. Reports received from many manufacturers' representatives, jobbers, and general paper merchants during the current week indicate an encouraging improvement in demand, with the trade prospect more favorable than at this time last year.

The index of general business activity which has been upward since the middle of last month, rose to 87.6 per cent for the week ended May 27, from 86.1 per cent in the previous week, compared with 75.6 per cent for the corresponding week last year. The only major industry to report a decline was in automobiles, due to the strike in body and accessory plants.

Production of 180 paper mills for the week ended May 27 was estimated at 76.8 per cent, compared with 81.4 per cent for the previous week, and with 71.4 per cent for the corresponding period last year. Paper board production for the week ended May 27 stood at 66.0 per cent, compared with 65.0 per cent for the preceding week.

No important change in the newsprint market has been reported for the week. Consumption continues to lag behind the consumption demand for other grades of paper and the increased imports of European newsprint continues to have a depressing effect. The trend in this market is, therefore, complicated and uncertain at this date.

The trend in consumer demand for many grades of paper is upward this week. Sales volume for the medium grades and some of the finer grades of book papers, largely used in letter press printing for booklets and other direct mail advertising literature, is reported in some quarters of the trade as improved. Improved volume in some grades of sulphite bonds has been reported. Many staple grades of tissue papers continue in good demand. Sales in some grades of groundwood papers are maintained at a good level. Prices on all grades of white paper remain firm and unchanged.

Kraft paper production, demand and shipments, continue at a high level and if current productivity continues a new high record is in prospect for this year. The large increase in imports of kraft paper, mainly from Sweden and Finland, from last March to date, and which is reported being sold at around 70 cents per cwt. under representative market prices for the domestic product, is under consideration by the Government who will determine if such shipments are subsidized and thus come under the head of unfair competition.

Mechanical Pulp

No important change in prices or demand has been reported in mechanical pulp for the week. Production continues at a good level, the market is firm and the outlook is favorable.

Chemical Pulp

A little more activity is reported in the chemical pulp market this week. The market is firmer under the influence of increased orders received in the last two weeks. Prices continue unchanged at prevailing representative market quotations.

Old Rope and Bagging

Mill buying of old rope continues in relatively small lots at prevailing prices of 2.75 to 3.00 for No. 1 domestic Manila. Jute threads are in more active demand this week, otherwise the old rope market is quiet. Trading in old bagging continues limited and mills are reported to have ample stocks on hand. No change in prevailing prices have been reported for the current week.

Rags

Although the supply of new rags has been reported in several quarters of the trade as limited, mill buying continues on a restricted scale, with No. 1 white shirt cuttings currently quoted at from 6.75 to 7.00. Prevailing prices hold unchanged on all other grades of new and old domestic rags. With the exception of linen rags, which are in fair demand, the foreign rag market in paper-making rags is unchanged for the week.

Old Waste Paper

The Memorial day holiday had a slowing-up effect on the old waste paper market, which is reported as rather quiet this week. No change in prevailing quotations has been reported, excepting on old kraft, machine compressed bales, which is lower for the week and currently quoted at from .60 to .65, while strictly folded news is currently quoted at from .27½ to .32½.

Twine

Improved demand for a few grades of twine has been reported in some quarters of the trade, but this market as a whole reflects no important change to date. Prices on all grades of hard and soft fiber twines continue unchanged at prevailing market quotations.

To Play Golf at Virginia Beach

The invitation golf tournament of the Southeastern Paper Trade Association will be held this year at the Princess Anne Country Club Golf Course, Virginia Beach, Va., with headquarters at the Cavalier Hotel, June 16 and 17. Paper men generally are invited. Reservations should be sent at once to W. Disney Cole, of the Epes-Fitzgerald Paper Company, Richmond, Va.

Miscellaneous Markets

Office of the PAPER TRADE JOURNAL,
Wednesday, June 7, 1939.

BLANC FIXE—Quotations on blanc fixe remain firm and conform to prevailing market levels. The pulp is offered at from $42.50 to $45 per ton, in bulk; the powder is quoted at from 3½ to 3¾ cents per pound, in barrels, at works.

BLEACHING POWDER—Prices on bleaching powder continue firm and unchanged at prevailing market quotations. Bleaching powder is quoted at from $2 to $2.25 per 100 pounds, in drums, at works.

CASEIN—The demand for casein is reported as good for the week. Prices remain unchanged. Standard domestic casein, 20-30 mesh is quoted at from 8½ to 9 cents per pound; 80-100 mesh, at from 9 to 9½ cents per pound. All prices in bags, car lot quantities.

CAUSTIC SODA—Quotations on caustic soda remain unchanged at prevailing market price levels. Solid caustic soda is currently quoted at from $2.10 to $2.30 per 100 pounds; flake and ground at from $2.50 to $2.70 per 100 pounds, in drums, at works.

CHINA CLAY—Prices on china clay continue firm and conform to prevailing market quotations. Imported clay is offered at from $13 to $25 per ton, ship side. Domestic filler clay is currently quoted at from $6.50 to $12 per ton; coating clay at from $11 to $22 per ton, at mines.

CHLORINE—Quotations on chlorine remain firm and continue unchanged at prevailing market levels. Chlorine is currently quoted at $1.75 per 100 pounds, in single-unit tank cars, f.o.b., works.

ROSIN—The rosin market is reported as firm and the demand as good for the current week. "G" gum rosin is quoted at $4.60; "FF" wood rosin at $4.25, per 280 pounds, gross weight, in barrels, at Savannah. Seventy per cent gum rosin size is offered at $2.63 per 100 pounds, f.o.b., shipping point.

SALT CAKE—Quotations on salt cake continue firm and unchanged at prevailing market prices. Quotations range at from $12 to $13.50 per ton; chrome salt cake at from $11 to $12 per ton, f.o.b., shipping point. Imported salt cake is offered at from $14.50 to $15 per ton, Gulf or Atlantic Seaboard, on dock.

SODA ASH—Prices on soda ash continue firm under a steady demand and conform to prevailing market quotations. Prices on soda ash in car lots, at works, per 100 pounds, are as follows: in bulk, $.90; in bags, $1.05; and in barrels, $1.35.

STARCH—The corn starch market is reported as firm, with a good demand for the current week. Globe pearl is currently quoted at $2.55 per 100 pounds; special paper starch is offered at $2.65 per 100 pounds. All prices in bags, car lot quantities, f.o.b., Chicago.

SULPHATE OF ALUMINA—Quotations on sulphate of alumina are reported as firm and unchanged at prevailing prices. The commercial grades are currently quoted at $1.15; iron free at $1.30, per 100 pounds, in bags, car lot quantities, f.o.b., works.

SULPHUR—Prices on sulphur are reported as firm and conforming to prevailing market quotations. Annual contracts are quoted at $16 per long ton, f.o.b., mines. Spot and nearby car lots are offered at $19 per ton.

TALC—Quotations on talc continue firm and unchanged at prevailing market levels. Domestic talc is quoted at from $15 to $18 per ton, f.o.b., mines. Imported talc is offered at from $25 to $40 per ton, on dock.

Market Quotations

Paper

(Delivered New York)

News, per ton—			
Roll, contract	$50.00	@	—
Sheets	58.00	@	—
Kraft—per cwt.—Delivered Zone A			
No. 1 Northern	$4.75	@	$5.25
Superstandard	4.12½	@	4.62½
Northern Standard Wrapping	4.00	@	—
Standard Wrapping	3.50	@	—
Tissues—Per Ream—Carlots			
White No. 1	$0.82½	@	—
White No. 1 M. G.	.80	@	—
White No. 1½	.67½	@	—
White No. 2	.60	@	—
Anti-Tarnish M. G.	.65	@	—
Colored	.77½	@	—
Kraft	.65	@	—
Manila	.60	@	—
Unbl. Toilet, 1 M.	2.65	@	—
Bleached Toilet	3.26	@	—
Paper Towels—Per Case			
Unbleached, Jr.	$1.75	@	—
Bleached Jr.	3.10	@	—
Manila—per cwt.—C. l. f. a.			
No. 1 Jute	7.75	@	9.75
No. 1 Manila Wrapping, 35 lb.	5.00	@	—
No. 2 Manila Wrapping, 35 lb.	4.75	@	—
Boards, per ton—			
News	30.00	@	32.50
Chip	30.00	@	32.50
Sgl. Mla. Lt. Chip	42.50	@	—
Jute Lined Chip	42.50	@	45.00
White Pat. Coated	55.00	@	57.50
Kraft Liners	45.00	@	—
Binders Boards	71.00	@	77.00

The following are representative of distributors' resale prices:

Rag Content Bonds and Ledgers—White, Assorted Items, Delivered in Zone 1:

	Bonds		Ledgers	
100% Rag Ext. No. 1	$39.10	@ $46.00	$40.25	@ $47.25
100% Rag	31.05	@ 36.50	32.20	@ 37.75
85% Rag	.....		29.90	@ 35.00
75% Rag	23.60	@ 27.75	24.75	@ 29.00
65% Rag	.....		21.65	@ 26.25
50% Rag	17.55	@ 21.50	18.70	@ 22.75
25% Rag	14.65	@ 17.75	15.80	@ 19.25

Colors at $1.00 cwt. extra.

Sulphite Bonds and Ledgers—White, Assorted Items, Delivered in Zone 1:

	Bonds		Ledgers	
No. 1	$8.60	@ $10.50	$9.75	@ $12.00
No. 2	7.70	@ 9.50	8.90	@ 10.75
No. 3	6.75	@ 8.25	7.90	@ 10.00
No. 4	7.00	@ 8.50	8.20	@ 10.00

Colors $1.00 cwt. extra.

Free Sheet Book Papers—White, Cased Paper, Delivered in Zone 1:

No. 1 Glossy Coated	$11.30	@	$12.75
No. 2 Glossy Coated	9.70	@	11.00
No. 3 Glossy Coated	8.60	@	10.00
No. 4 Glossy Coated	8.05	@	9.25
No. 1 Antique (watermarked)	8.05	@	9.25
No. 2 Offset	7.45	@	8.50
A Grade E. F.	7.20	@	8.25
A Grade S. & S. C.	7.45	@	8.50
B Grade E. F.	6.65	@	7.75
B Grade S. & S. C.	6.90	@	8.00
C Grade E. F.	6.40	@	7.50
C Grade S. & S. C.	6.65	@	7.75
D Grade E. F.	6.10	@	7.00
D Grade S. & S. C.	6.35	@	7.25

Ivory & India at $.50 cwt. extra.

Mechanical Pulp

(On Dock, Atlantic Ports)

No. 1 Imported—			
Moist	25.00	@	28.00
Dry	25.00	@	28.00
(Delivered)			
No. 1 Domestic and Canadian	29.00	@	33.00

Chemical Pulp

(On Dock, Atlantic, Gulf and West Coast Ports)

Bleached Sulphite (Domestic and Foreign)—			
Prime Bleached Sulphite	2.25	@	2.75
Prime Qualities—			
Easy-Bleaching Sulphite	1.90	@	2.00
Strong Unbleached Sulphite	1.80	@	1.95
(On Dock, Atlantic Ports)			
Kraft Bleached	2.50	@	2.75
Kraft Light & Strong	1.60	@	1.75
Kraft No. 1	1.45	@	1.60
Kraft No. 2	1.35	@	1.40
(F. o. b. Pulp Mill)			
Kraft Domestic	1.25	@	1.75
(Delivered)			
Soda Bleached	2.55	@	—

Add 60 cents per short ton, dock charges for Albany; $2.50 for Lake Ports East and $3.50 for Lake Ports West of Mackinac Straits.

Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—			
New White, No. 1	6.75	@	7.00
Silesias No. 1	4.50	@	4.75
New Unbleached	6.75	@	7.00
Blue Overall	4.90	@	5.00
Fancy	1.75	@	2.00
Washables	1.50	@	1.60
Mixed Khaki Cuttings	2.25	@	2.50
O. D. Khaki Cuttings	3.25	@	3.40

Old Rags

White, No. 1—			
Repacked	2.90	@	3.15
Miscellaneous	2.10	@	2.25
White, No. 2—			
Repacked	1.50	@	1.60
Miscellaneous	1.25	@	1.40
Thirds and Blues—			
Repacked	1.30	@	1.40
Miscellaneous	1.15	@	1.20
Roofing Rags—			
No. 1	1.00	@	1.10
No. 2	.75	@	.85
No. 3 (bagging)	.55	@	.65
No. 4	.60	@	.65
No. 5A	.60	@	.65

Foreign Rags

New Rags

New Dark Cuttings	2.25	@	2.40
New Mixed Cuttings	2.00	@	2.20
New Light Silesias	5.50	@	5.75
Light Flannelettes	5.50	@	5.75
New White Cuttings	7.00	@	7.50
New Light Oxford	4.00	@	4.50
New Light Prints	3.00	@	3.25

Old Rags

No. 1 White Linens	7.50	@	8.50
No. 2 White Linens	6.50	@	7.50
No. 3 White Linens	4.50	@	—

West Virginia Pulp and Paper Company

230 Park Ave.
New York

35 East Wacker Drive
Chicago

Public Ledger Building
Philadelphia, Pa.

503 Market St.
San Francisco, Cal.

Manufacturers of

ENGLISH FINISH SUPERCALENDERED MACHINE FINISHED BOOK and LITHOGRAPHIC PAPERS

Offset, Envelope, Bond, Writing, Mimeograph, Ledger, Eggshell, Cover and Music Papers, Index Bristol, Post Card and Label Papers

HIGH GRADE COATED BOOK

• • • •

KRAFT WRAPPING AND KRAFT ENVELOPE
KRAFT CYLINDER BOARD
BLEACHED SULPHITE AND SODA PULP
BLEACHED AND UNBLEACHED KRAFT PULP

MILLS:

Mechanicville, New York
Luke, Maryland
Covington, Virginia
Tyrone, Pennsylvania
Williamsburg, Pennsylvania
Cass, West Virginia
Charleston, South Carolina

Knox felts

HIGH POROSITY

. . . as a characteristic of a paper maker's felt will, not only add to the life of felt, but saves time lost on the machine due to excessive shut downs for washing. Specify

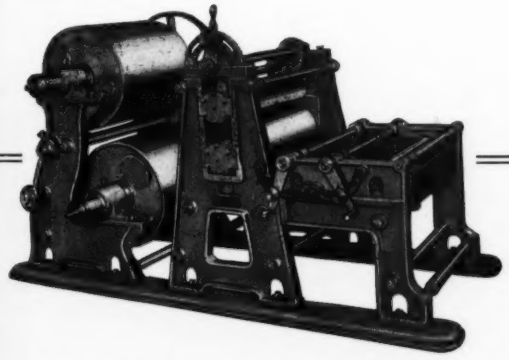
EXCELSIOR FELTS

and minimize this trouble. Made by the Knox Woolen Co., of Camden, Maine, since 1864.

BULKLEY, DUNTON & CO.

295 Madison Ave. New York, N. Y.

CAledonia-5 5260-66



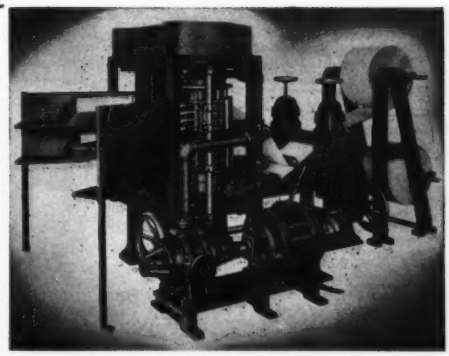
ALL PURPOSE WAXING UNIT

Used by many large producers of wraps and bags to enable a combination of printing and waxing; or printing, waxing and bag conversion; into a single operation.

Furnished complete with drives so that waxer may be set back of printing press or between printing press and bag machine.

Produces an excellent sheet, one or both sides waxed, with perfect control of wax percentages.

HUDSON-SHARP MACHINE COMPANY
Green Bay, Wisconsin



THE HIGHEST PRODUCING 2-WEB NAPKIN FOLDER ON THE MARKET

New "VERTIVAC"

ROTARY VERTICAL NAPKIN FOLDER

A machine designed for mass production for making established size napkins. Its capacity is from 1400 to 1500 napkins per minute on 2 webs. Eight napkins are produced in each revolution of the folding rolls. The vacuum system is used for carrying and folding. Made with or without embossing units and printing presses. It has no belts, no mechanical gripping mechanism to wear out, no moving or spring-back tucker blades, and no band knives. Can be equipped to fold 1/8, 1/4, and 1/4 fold napkins. Write for complete details on this fast production machine.

PAPER CONVERTING MACHINE CO.
GREEN BAY, WISCONSIN
Manufacturers of paper converting machinery for all purposes.

No. 4 White Linens.	2.25	@	3.25
No. 1 White Cotton.	4.25	@	4.75
No. 2 White Cotton.	3.25	@	3.75
No. 3 White Cotton.	2.50	@	3.00
No. 4 White Cotton.	1.90	@	2.20
Extra Light Prints..	2.00	@	2.40
Ord. Light Prints...	1.75	@	2.15
Med. Light Prints...	1.55	@	1.95
Dutch Blue Cottons.	2.25	@	2.50
French Blue Linens..	3.00	@	—
Checks and Blues...	2.00	@	—
Linsey Garments....	1.90	@	2.00
Dark Cottons.....	1.50	@	1.60
Old Shopperies.....	1.30	@	1.45
New Shopperies.....	1.45	@	1.50
French Blues.....	2.25	@	2.50

Old Rope and Bagging

(Prices to Mill, f. o. b. N. Y.)

Gunny No. 1—			
Foreign	1.75	@	1.90
Domestic	1.75	@	1.80
Wool Tares, light...	1.60	@	1.70
Wool Tares, heavy..	1.80	@	1.90
Bright Bagging.....	1.60	@	1.70
Manila Rope—			
Foreign	2.60	@	2.75
Domestic	2.75	@	3.00
Jute Threads.....	3.00	@	3.25
Sisal Strings	1.50	@	1.60
Mixed Strings....	.55	@	.60

Old Waste Papers

(F. o. b. New York)

Shavings—			
White Envelope Cuttings	2.30	@	2.40
Ordinary Hard White No. 1....	1.90	@	2.00
Soft White No. 1..	1.60	@	1.75
Soft White Extra..	2.25	@	2.40
Flat Stock—			
Stitchless	.80	@	.85
Overissue Mag	.70	@	.75
Solid Flat Book....	.55	@	.60
Crumbled No. 1....	.40	@	.45
Ledger Stock White.	1.05	@	1.15
Ledger Stock Colored	.60	@	.70
New B. B. Chips....	.15	@	.20
Manila—			
New Env. Cut....	1.40	@	1.50
New Cuttings.....	1.00	@	1.20
Old Kraft Machine—			
Compressed bales..	.60	@	.65
News—			
No. 1 White News	1.25	@	1.30
Strictly Overissue.	.40	@	.45
Strictly Folded....	.27½	@	.32½
No. 1 Mixed Paper..	.17½	@	.22½

Twines

(F. o. b. Mill)
(Soft Fiber)

Coarse Polished—			
India	.12¾	@	.14¾
White Hemp.....	.13¾	@	.15¾
Fine Polished—			
Fine India.....	.16	@	.18
Unpolished—			
Box	.09½	@	—
Paper Makers.....	.09½	@	.10½
Tube Rope.....	.10¼	@	.12½
Wall Paper.....	.10¾	@	.12½
Wrapping	.12	@	—
Soft Fiber Rope...	.12	@	.14
Cotton	.16	@	.19
(Hard Fiber)			
Medium Java.....	.11	lb	.17
Mex. Sisal.....	.10	@	.16
Manila	.16	@	.23

Domestic	2.65	@	2.75
Sisal Rope	1.75	@	1.85
Mixed Rope.....	.45	@	.50
Transmission Rope...	1.90	@	2.00
Soft Jute Rope	2.00	@	2.25
Jute Carpet Threads.	.75	@	.90
Gunny Bagging—			
Foreign	1.50	@	1.65
Domestic	1.40	@	1.50
Bleachery Burlap....	2.50	@	2.70
Scrap Burlap—			
Foreign	1.35	@	1.40
Domestic	1.25	@	1.40
Scrap Sisal.....	1.75	@	1.80
Scrap Sisal for Shredding	1.75	@	1.80
Wool Tares, Heavy..	1.40	@	1.50
New Burlap Cuttings	2.25	@	2.40
Aust. Wool Pouches.	1.75	@	2.00
Heavy Baling Bagging	1.50	@	1.60
Paper Mill Bagging..	.85	@	1.00
No. 2 Bagging.....	.45	@	.50

Domestic Rags (New)

(F. o. b. Boston)

Shirt Cuttings—			
New Light Prints...	.03¼	@	.03½
New White No. 1...	.06¾	@	.07
New Light Flannelettes	.05	@	—
Silesias No. 1.....	.04	@	.04¼
New Black Silesias..	.03½	@	.03¾
Soft Unbleached....	6.50	@	7.00
Blue Cheviots.....	.05	@	.05¼
Fancy	.02	@	.02½
Washable	.02	@	.02½
Cottons—According to grades—			
Blue Overalls.....	.04¾	@	.05
New Black, soft...	.03¾	@	.04
Khaki Cuttings.....	.02½	@	.03
O. D. Khaki.....	.03	@	.03¼
Corduroy	.02¾	@	.03
New Canvas.....	.06¾	@	.07¼
B. V. D. Cuttings...	.06¾	@	.07

Domestic Rags (Old)

(F. o. b. Boston)

Canvas	.04¼	@	—
White No. 1—			
Repacked	—	@	2.75
Miscellaneous	2.50	@	2.75
White No. 2—			
Repacked	1.90	@	2.00
Miscellaneous	2.00	@	2.25
Twos and Blues.....	1.75	@	2.00
Old Blue Overalls...	1.50	@	—
Thirds and Blues—			
Repacked	1.37½	@	1.75
Miscellaneous	1.25	@	1.62¼
Black Stockings.....	3.90	@	4.00
Roofing Stock—			
No. 1.....	1.00	@	1.10
No. 2.....	.75	@	.85
No. 3.....	.65	@	.70

Foreign Rags

(F. o. b. Boston)

Dark Cottons.....	.90	@	1.10
Dutch Blues.....	2.65	@	2.75
New Checks and Blues	2.85	@	3.00
Old Fustians.....	2.25	@	2.50
Old Linsey Garments	2.20	@	2.30
New Silesias.....	3.75	@	4.00

PHILADELPHIA

Domestic Rags (New)

(Price to Mill, f. o. b. Phil.)

Shirt Cuttings—			
New White, No. 1.	.06½	@	.07
New White, No. 2.	.03½	@	.04
Light Silesias.....	.03½	@	.04
Silesias, No. 1....	—	@	.04½
Black Silesias, soft	—	@	.03
New Unbleached..	.05½	@	.06
Washable, No. 1..	.01½	@	.01¾
Blue Overall.....	.04½	@	.05
Cottons—According to grades—			
Washable No. 2...	.01	@	.01¼
New Blue.....	.01	@	.01¼
Fancy Percales...	—	@	.02½
New Black Soft...	.03	@	.03½
New Light Seconds	—	@	.04½
New Dark Seconds	.50	@	.75
Khaki Cuttings—			
No. 1 O. D.....	.03	@	.03½
No. 2 Mixed.....	.02	@	.02½
Corduroy	—	@	.02
New Canvas.....	.05	@	.05½
New Black Mixed.	.02½	@	.02¾

Domestic Rags (Old)

White No. 1—			
Repacked	2.75	@	3.00
Miscellaneous	2.00	@	2.25
Thirds and Blues—			
Miscellaneous	1.00	@	1.25
Repacked	1.50	@	1.75
Black Stockings (Export)	3.00	@	3.50
Roofing Stock—			
Foreign No. 1....	—	@	1.10
Domestic No. 1...	—	@	1.05
Domestic No. 2...	—	@	.85
Roofing Bagging..	—	@	.75

Bagging

(F. o. b. Phila.)

Gunny, No. 1—			
Foreign	1.65	@	1.75
Domestic	1.50	@	1.75
Manila Rope.....	—	@	3.00
Sisal Rope.....	1.50	@	1.75
Mixed Rope.....	.75	@	1.00
Scrap—			
No. 1.....	—	@	1.75
No. 2.....	.95	@	1.00
Wool Tares, heavy..	3.25	@	3.50
Mixed Strings.....	.45	@	.50
No. 1 New Light Burlap	2.50	@	3.00
New Burlap Cuttings	1.75	@	2.00

Old Papers

(F. o. b. Phila.)

Shavings—			
No. 2 Hard White	2.25	@	2.30
No. 2 Hard White	1.90	@	2.00
No. 1 Soft White.	1.75	@	1.80
No. 2 Soft White.	1.30	@	1.40
No. 1 Mixed.....	.65	@	.75
Solid Ledger Stock.	1.45	@	1.50
Ledger Stock, white.	1.15	@	1.20
Ledger Stock, colored	.75	@	.80
No. 1 Books, heavy.	.60	@	.75
Manila Cuttings....	1.45	@	1.50
Print Manila.....	.45	@	.50
Container Manila...	.35	@	.40
Kraft Paper.....	.75	@	.80
No. 1 Mixed Paper..	.22½	@	.27½
Straw Board Chip...	.25	@	.30
Binders Board Chip.	.25	@	.30
Corrugated Board...	.50	@	.55
Overissue News.....	.40	@	.45
Old Newspapers....	.35	@	.40

BOSTON

Old Papers

(F. o. b. Boston)

Shavings—			
No. 1 Hard White	2.25	@	2.50
No. 1 Soft White.	1.85	@	2.15
No. 2 Mixed.....	.75	@	.80
Solid Ledger Books..	1.30	@	—
Overissue Ledger Stock	1.30	@	1.50
Mixed Ledgers.....	.85	@	.90
No. 1 Books, heavy..	.65	@	.75
No. 1 Books, light..	.65	@	.75
Crumpled Stitchless Book Stock.....	.55	@	.65
Manila Env. Cuttings	1.70	@	1.85
Manila Envelope Cuttings, Extra Quality	2.00	@	2.10
No. 1 Old Manila...	.65	@	.70
White Blank News..	1.30	@	1.40
No. 1 Kraft.....	.65	@	.75
Mixed Papers.....	.15	@	.17½
Print Manila.....	.45	@	.55
Container Manilas..	.27½	@	—
Old Newspapers.....	.27½	@	.32½
Paper Wool Strings..	.60	@	.65
Overissue News.....	.45	@	.50
Box Board Chips....	.20	@	.25
Corrugated Boxes....	.30	@	.32½
Kraft corrugated boxes	.60	@	.65
Screening Wrappers.	.40	@	.45

Bagging

(F. o. b. Boston)

Manila Rope—			
Foreign		@	2.65

CHICAGO

Old Papers

(F. o. b. Chicago)

Shavings—			
No. 1 White Envelope Cuttings....	1.80	@	1.90
No. 1 Hard White.	1.70	@	1.80
No. 1 Soft White..	1.50	@	—
Ledger & Writings..	.75	@	.80
Solid Books.....	.45	@	.50
Blanks	.90	@	—
Krafts	.45	@	.50
New Kraft Cuts.....	1.10	@	—
Manila Env. Cuts...	Nominal		
Ex. No. 1 Manila...	Nominal		
Print Manila	Nominal		
Overissue News.....	.35	@	—
Old Newspapers—			
No. 1 Folded News	.25	@	.30
No. 1 Mixed Paper	.15	@	.20
Roofing Stocks—			
No. 1.....	1.00	@	1.05
No. 2.....	.85	@	—

TORONTO

Paper

Bonds

Direct mill shipment in two-ton lots

No. 1 White	$35.50	@	—
No. 1 Tints	36.50	@	—
No. 2 White	25.50	@	—
No. 2 Tints	26.50	@	—
No. 2 Golden Rod..	27.50	@	—
No. 3 White	21.00	@	—
No. 4 White	15.00	@	—
No. 4 Tints	16.00	@	—
No. 4 Golden Rod...	17.00	@	—
Direct mill shipment in three-ton lots			
No. 5 White	$10.50	@	—
No. 5 Tints	11.50	@	—
No. 5 Golden Rod..	12.00	@	—
No. 6 White	9.00	@	—
No. 6 Tints	9.50	@	—
No. 6 Golden Rod..	11.00	@	—
No. 7 White	8.00	@	—
No. 7 Tints	8.50	@	—
No. 7 Golden Rod..	10.00	@	—
Book—			
No. 1 M. F.	$7.00	@	—
No. 2 M. F.	6.50	@	—
No. 3 M. F.	5.35	@	—
No. 1 S. C.	7.25	@	—
No. 2 S. C.	6.75	@	—
No. 3 S. C.	5.85	@	—

Coated Book & Litho

Ton Lots (resale)

No. 1	$12.00	@	—
No. 2	10.25	@	—
No. 3	8.90	@	—
Coated tinted	13.00	@	—
Wrapping—delivered—			
Rag Brown.....	4.85	@	5.25
White Wrap.....	4.00	@	—
"B" Manila.....	4.90	@	6.15
No. 1 Manila.....	5.50	@	6.90
Fiber	5.50	@	6.90
Kraft No. 2.....	5.50	@	6.90

(F. o. b. Cars, Toronto)

News per ton—			
Rolls (contract)..)	46.00	@	—
Sheets	54.00	@	—

Pulp

Ground wood.....	$29.00	@	—
Unbleached sulphite.	44.00	@	—
Bleached sulphite...	54.00	@	—
Kraft	50.00	@	—
Soda	54.00	@	—

Old Waste Paper

(In carload lots, f. o. b. Toronto)

Shavings—			
White Env. Cut...	2.00	@	—
Soft White.....	1.75	@	—
White Blk. News..	1.25	@	1.10
Book and Ledger—			
Flat Magazine and Book Stock (old)	.70	@	—
Light and Crumpled Book Stock.	.60	@	—
Ledgers and Writings	1.00	@	—
Manilas—			
New Manila Cut...	1.35	@	—
Printed Manilas...	.45	@	—
Kraft	.95	@	—
News and Scrap—			
Strictly Overissue..	.50	@	—
Strictly Folded....	.45	@	—
No. 1 Mixed Paper..	.30	@	—

Domestic Rags

(Price to Mills, f.o.b. Toronto)

No. 1 White Shirt Cuttings	.06½	@	.06¾
Light Prints.....	.03	@	.03¼

$70 + $1440 + $191 = $1701
saved on just 3 Machines

A PROMINENT PAPER MANUFACTURER found that blown fuses and motor burnouts were causing production to drag—and costing too much loss in man-hours, machine time and maintenance expense. By replacing fuses with Westinghouse Nofuze protection, on just three machines, they saved a total of $1701 a year... and here's the way they did it:

$70 HERE

Every day, 3 or 4 fuses blew, 15 minutes lost each time, for 3 operators and 3 machines. Cost of lost man-hours alone — $1.35 per day — $70 per year, plus idle machine time. One ABI Breaker reduced it to estimated five minutes loss per day, with no maintenance.

$1,440 HERE

Any one of six motors burning out on this paper machine caused loss of $125 per hour machine time, plus $100 motor repair. Four times a year — the usual record — cost $1,440. All saved with Nofuze Breakers — not a motor burnout in 2½ years.

$191 HERE

The vertical pump motor used to circulate material through the sump frequently stalled due to overload. Workmen blocked the fuses, tried to force impeller with large wrench. Frequent result — burnt-out motor. Even at once a year, this cost $191 for repairs. But a Westinghouse Nofuze Combination Linestarter stopped the trouble and cost — permanently.

Perhaps you could make similar savings, speed up operations, improve products, with modern electric drives. Westinghouse will help you check your plant. Just call the local office, or write Westinghouse Electric & Manufacturing Company, East Pittsburgh, Pa. Address Dept. 7-N.

J-90204

Motors and Control